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INTRODUCTION

The 1982 edition of Michigan Health Statistics is a statistical summary of vital events for calendar year 1981. Data relative to population, births, deaths, fetal deaths, marriages, divorces and communicable diseases are included. Although most of the data in this report pertain to events occurring in 1982, some data for prior years have been included to illustrate trends. Most of the tabulations refer to Michigan residents. Some events, however, such as marriages and divorces are tabulated with respect to where the event occurred rather than the residence of the party or parties involved.

As a certain number of Michigan residents either deliver babies or die out of state each year, it is necessary to include data obtained from the certificates of other states in any tabulations pertaining to Michigan residents. This report includes all such out-of-state certificates received prior to April 30, 1983, and all in-state certificates and records received prior to March 15, 1983. Although a few records for the calendar year 1982 were received after these filing dates, their exclusion from this report is statistically insignificant.

This report is composed of the following sections and appendices:

1. Natality Section, 2. Mortality Section, 3. Marriage and Divorce Section, 4. Reference Appendix.

Comments or suggestions concerning the content and format of this report are always welcome. Any additional needs for data or analyses may be directed to the Office. A summary of prepared vital statistics tabulations, Index to Michigan Vital Statistics 1960 to Present, is also available. This index lists the types of tabulations and data available. The Office will make every attempt to comply with requests for data within the limitations of staff and resources.

Office of the State Registrar and Center for Health Statistics
Michigan Department of Public Health
3500 North Logan Street
P.O. Box 30035
Lansing, Michigan 48909

Area Code (517) 373-1390

TECHNICAL NOTES, DEFINITIONS, RATES AND RATIOS

DEFINITIONS

BIRTH WEIGHT-Weight of fetus or infant at time of delivery.

FETAL DEATH-Death prior to the complete expulsion or extraction from its mother of a product of conception, having passed through at least the 20th week of gestation or weighing at least 400 grams; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. (Note: This includes both spontaneous and induced terminations.)

FIRST BIRTH-A live birth where the maternal medical history indicates there were no prior live births to the mother.

GESTATIONAL PERIOD-Number of weeks elapsed between the first day of the last menstral period and the date of delivery.

HEBDOMADAL DEATH-Death occurring to an individual less than 7 days of age.

INFANT DEATH-Death occurring to an individual less than 1 year of age.

INTERPREGNANCY TIME PERIOD-Birth date minus date of last termination, whether a live birth or fetal death, in months. Time periods of zero length are dropped to exclude 2nd or higher births of multiple deliveries.

LEADING CAUSES OF DEATH-Deaths are grouped into 72 categories dependent upon the underlying cause of death. Ranks are assigned by organizing these categories according to the number of deaths in each category from most frequent to least.

LIFE EXPECTANCY-A hypothetical calculation of the average age at death for a cohort of persons subject to the age-specific mortality rates observed over a given time period.

LIFE TABLE VALUES:
nqx=The proportion of persons in the cohort alive at the beginning of an age interval (x) who will die before reaching the end of that age interval (x+n).
lx=The number of persons living at the beginning of an age interval (x) out of an original cohort of 100,000.
ndx=The number of persons who would die during an age interval (x to x+n) out of an original cohort of 100,000.
nLx=The number of person-years that would be lived within an indicated age interval (x to x+n) out of an original

cohort of 100,000 alive for all or part of the interval.
Tx=The number of person-years that would be lived after the beginning of an age interval (x) by an original cohort of 100,000 until all are assumed to have died.
ex=The average remaining lifetime (in years) for an individual person who survives to the beginning of an indicated age interval (x).

LIVE BIRTH-A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.
Effective on November 9, 1981, the definition of a live birth is established in administrative rule number 325.3201 as follows:

> "Live birth" means the complete expulsion or extraction from a pregnant woman of a product of human conception which, after such expulsion or extraction, shows any evidence of life, whether or not the umbilical cord has been cut or the placenta is attached.

LIVE-BIRTH ORDER-Order number is equal to number of previous live births plus current birth.

LOW-WEIGHT BIRTH-Birth wherein the birth weight is equivalent to 2,500 grams or less (approximately 5 lbs., 8 oz.).

MATERNAL DEATHS-Those deaths wherein the physician has designated a maternal condition as the underlying cause of death (9th Revision ICD codes 630-676).

MEAN-The average of a set of values, equal to the sum of the values divided by the number of values.

MEDIAN-The central value of a distribution of values wherein the same percentage of observations are above this point as are below.

MINOR CIVIL DIVISION-City, village, or township.

NEONATAL DEATH-Death occurring to individual less than 28 days of age.

OCCURRENCE-Place where the event actually occurred.

PERINATAL DEATH-Fetal death or death under 1 week of age.

PROBABILITY OF EVENTUALLY DYING FROM A GIVEN CAUSE OF DEATH-The chance of death due to a given cause rather than some competitive cause over the course of a lifetime based on current mortality data and life expectancy techniques.

RACE-Race for mother, father, or decedent is as stated on certificate. Race of child is determined from the race of the parents.

REMAINING YEARS OF LIFE-A hypothetical calculation of the average number of years a cohort of persons will live given that they have reached a specific age and assuming they are subject to the age-specific mortality rates observed over a given time period.

RESIDENCE-Usual place of residence for the person to whom the event occurred. For births and fetal deaths residence is defined as the mother's usual place of residence.

TOTAL BIRTHS-Live births and fetal deaths.

UNDERLYING CAUSE OF DEATH-That condition giving rise to the chain of events leading to death.

RATES AND RATIOS

AGE-ADJUSTED DEATH RATE-A summary rate of death that is developed using a standard population distribution to improve the comparability of rates for areas or population subgroups with differing age distributions. When calculated by the direct method, as in this report, age-specific death rates for a geographic area or population subgroup are multiplied by the standard population by specific age and the products summed and divided by the total standard population. Age-adjusted death rates represent the mortality experience that would have occurred in a standard population had the age-specific rates of the area or population subgroup been experienced by the standard population. These rates are presented as per 100,000 population.

AGE-SPECIFIC BIRTH RATE-No. of resident live births to women of a specific age divided by total female population of specific age x 1,000.

AGE-SPECIFIC DEATH RATE-No. of deaths in specific age group divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC DEATH RATE BY CAUSE OF DEATH-No. of deaths in specific age group and from a specific cause divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC MARRIAGE RATE-No. of marriages in specific age group by sex divided by total resident population in specific age and sex group x 1,000.

CAUSE-SPECIFIC RATE-No. of deaths due to a specific cause divided by total resident population x 100,000.

CONGENITAL ANOMALY RATE -- No. of resident live births with a congenital malformation reported divided by the total number of rsident live births x 10,000.

COMMUNICABLE DISEASE CASE RATE-No. of reported cases (specific communicable diseases) divided by total resident population x 100,000.

CRUDE BIRTH RATE-No. of resident live births divided by total resident population x 1,000.

CRUDE DEATH RATE-No. of resident deaths divided by total resident population x 1,000.

DIVORCE RATE-No. of persons (divorces and annulments) divided by total resident population x 1,000.

FERTILITY RATE-NO. of resident live births divided by total female population (ages 15-44) x 1,000.

FETAL DEATH RATE-No. of resident fetal deaths divided by total resident live births and resident fetal deaths x 1,000.

FETAL DEATH RATIO-No. of resident fetal deaths divided by total resident live births x 1,000.

FIRST MARRIAGE RATE-No. of marriages to persons not previously married by sex divided by total resident population by sex x 1,000.

INFANT MORTALITY RATE-No. of infant deaths divided by total resident live births x 1,000.

LOW-WEIGHT BIRTH RATIO-No. of low-weight births divided by total resident live births x 1,000.

MARRIAGE RATE-No. of persons married divided by total resident population x 1,000.

MATERNAL DEATH RATE-No. of maternal deaths divided by total resident live births x 10,000.

NEONATAL DEATH RATE-No. of neonatal deaths divided by total resident live births x 1,000.

NO PRENATAL CARE RATIO-No. of live births to mothers with no prenatal care divided by total resident live births x 1,000.

PERINATAL DEATH RATE-No. of perinatal deaths divided by total resident live births and resident fetal deaths x

1,000.

RATE OF NATURAL INCREASE-(Total resident live births minus total resident deaths) divided by total resident population x 1,000.

TOTAL FERTILITY RATE-Sum of (age-specific birth rates) x (number of years in age group) for each age group from ages 10-14 through 45-49 years.

RELIABILITY OF RATES

Care should be taken in drawing specific inferences from comparisons of rates for different areas or different periods of time. Rates based on a small number of events or for a small area tend to exhibit considerable variation from time period to time period or place to place. Excessive variation in rates not only negates their utility as estimators of the probability of an event occurring but also their usefulness for comparative purposes. Also, one should recognize the limitations of using unadjusted rates in attempting to attribute rate differences to particular factors. For example, one should not attempt to state that there was a significant difference in rates for two geographic areas for atherosclerosis without first adjusting the rates to negate the effects of differing age distributions in the two areas. Many times there are simply not sufficient data available to adequately adjust rates for all possible confounding factors. For this reason the reader should exercise diligence and caution while attempting to draw substantive conclusions when comparing vital statistics rates.

QUALIFICATIONS AND LIMITATIONS OF DATA AND CALCULATIONS

UNDERREGISTRATION OF EVENTS

The underregistration of vital events in Michigan is considered to be a minimal problem particularly for births and deaths. Tests of registration completeness conducted in conjunction with the 1950 Census indicate that the registration of births was 98.5 percent complete, and that death registration was even more complete. The number of certificates received too late for inclusion in annual statistical files is insignificant when examining statewide patterns.

GEOGRAPHIC ALLOCATION

The allocation of events on a residence or occurrence basis is for the most part accurate and complete. However, allocations to minor civil divisions are subject to question in some instances. In those cases where the respondent completes the residence item with a mailing address, geographic allocation is sometimes undeterminable and the record receives an unknown minor civil division code.

FETAL DEATHS

Fetal deaths in Michigan include only those conceptions that have passed through 20 weeks gestation or that weigh 400 grams or more. Prior to the introduction of a new reporting form for fetal deaths on September 30, 1978, Michigan law required only the reporting of deaths of fetuses which had passed through 20 weeks gestation. Inadequacies in determining the gestational age of the fetus may have resulted in some underreporting of fetal deaths. The change in definition has had little impact on the number of fetal deaths reported.

COMPARABILITY IN CAUSE OF DEATH STATISTICS

The reader should bear in mind two major limitations in interpreting changes in cause-of-death statistics. Changes in nomenclature and the classification scheme (International Classification of Diseases) and changes in diagnostic practices may seriously affect the comparability of such statistics over time. The classification scheme (ICD) is modified approximately once every ten years to reflect changing medical opinion and practice. The reader is most accurate when comparing cause-of-death certificates which are coded via one revision of the International Classification of Diseases and utilizing the coding practices and procedures in effect at that time.

In order to compare cause-of-death statistics from one revision to the next it is necessary to apply a 'comparability ratio'. Such ratios are developed by comparing the number of deaths assigned to a certain condition or group of conditions under one revision to the number assigned under another revision of the ICD.

In 1979 the 9th Revision of the International Classification of Diseases, WHO, was introduced for coding causes of death and was employed in categorizing the data for 1981.

LIFE EXPECTANCY

The procedure used to obtain the Michigan life table values is called the iterative method. This is a method which has been developed by Professor Felix Moore of the Department of Biostatistics, School of Public Health, University of Michigan.

For the age group 0-1 the method utilizes the algorithm developed by Greville with no iteration. For all subsequent age groups the method of Greville (Keyfitz) is used with three iterations to improve the estimate of ndx and nqx. An iteration procedure is also used for nLx for age groups 75-80 and 80-85 where the accuracy of mortality information is a factor and for obtaining the separation factor for the age group 1-4.

The life expectancy data by region shown in Figure 4.7 was prepared using mortality data for the period 1979-1981 and census population data for 1980. Data were grouped by ten year age groups (except for the age groups under 1 year and 1-4 years) to compute the life expectancy at birth for the regions.

AGE-ADJUSTMENT PROCEDURE AND POPULATION ESTIMATION

Population data for 1970 and 1980 were obtained from the April 1, 1970 and April 1, 1980 census counts. Data for 1980 included estimates derived from a provisional census release of the distribution by age, race, and sex, as well as some final counts by age and sex. The population totals used for 1971-1979 are intercensal estimates prepared by the Census Bureau utilizing the 1980 census results. The breakdowns of these totals by age, race, and sex were prepared by the Office of Vital and Health Statistics. For 1970 and 1980 the proportion of the total population in each age, race, and sex group was computed. Estimates of the proportion of the total population in each age, race, and sex group for the years 1971-1979 were then derived by interpolating between the proportions for 1970 and 1980. These subgroup proportions were then applied to the state totals to obtain population estimates by age, race, and sex for years 1971-1979.

Population estimates by age, race and sex for 1982 were prepared by projecting the mean annual change in the race proportions of each age-sex group of the population observed between the 1970 and 1980 censuses.

The age-adjusted rates for Michigan presented in this report for years 1970-1981 were calculated using Michigan resident mortality data and the series of population data described above. Death records with the race not stated were first randomly allocated to the white and other than white groups based on the proportion of Michigan resident deaths in each of the racial categories for that year. Records with sex not stated were randomly assigned to male and female (50 percent each). Records with age not stated were allocated to the age group 85 and over.

In the age-adjustment procedure ten age groups were employed including under 1 year, 1-14 years, ten year age groups from 15-24 years to age 75-84, and 85 years and over. Age-specific rates for the total population and for each subgroup were applied to the same standard population distributed by age. The resulting "expected deaths" were then summed over the ten age groups and divided by the total of the standard population to obtain the age-adjusted rate. The standard population selected was the 1940 United States enumerated population. Comparisons can be made between subgroup rates, between rates in different years, and between rates for Michigan and similarly computed rates for the United States.

UNITED STATES DEATH RATES

Death rates for the United States were taken from publications by the National Center for Health Statistics, U.S. Dept. of Health and Human Services. Rates for the United States shown in the series of tables of age-adjusted death rates for Michigan and the United States are based on the series of population estimates prepared before the results of the 1980 census enumeration were available. Because the rates are based on population estimates which are consistent with one another, trend comparisons for the nation can be made for the period 1970-1980. The U.S. rates for 1971-1980 have been revised as a result of the large difference between the 1980 census enumeration and the previously estimated population for 1980. The 1980 census enumeration was about 5.5 million higher than the estimated population for April 1, 1980.

The unadjusted death rates for the U.S. for all causes and by cause for 1980, 1981 and 1982 quoted in the text and shown in Tables 2.1 and 2.7 were calculated using population estimates based on the 1980 census enumeration.

NATALITY

SECTION I

NATALITY: AN OVERVIEW, 1982

TOTAL RESIDENT BIRTHS	138,903
TOTAL RESIDENT LIVE BIRTHS	137,950
RESIDENT LIVE BIRTHS PER DAY	377.9
TOTAL RESIDENT FETAL DEATHS	953
RESIDENT FETAL DEATHS PER DAY	2.6
CRUDE BIRTH RATE	15.0
FERTILITY RATE	61.7
FETAL DEATH RATIO	6.9
FIRST ORDER BIRTHS (PERCENT OF TOTAL LIVE BIRTHS)	41.2
MEDIAN BIRTH WEIGHT IN GRAMS (LIVE BIRTHS)	3,402
MEDIAN BIRTH WEIGHT IN GRAMS (FETAL DEATHS)	1,417
LOW WEIGHT LIVE BIRTHS	9,572
LOW WEIGHT BIRTH RATIO	69.4
MEDIAN AGE OF MOTHER (LIVE BIRTHS)	25
MEDIAN AGE OF MOTHER (FETAL DEATHS)	25
LIVE BIRTHS WITH CONGENITAL ANOMALIES	1,055
CONGENITAL ANOMALIES PER 10,000 LIVE BIRTHS	76.5
LIVE BIRTHS WITH NO PRENATAL CARE	1,127
NO PRENATAL CARE RATIO	8.2
HOME BIRTHS	707
LIVE BORN SETS OF TWINS	1,339
LIVE BORN SETS OF TRIPLETS	16
LIVE BORN MULTIPLE BIRTHS OF FOUR OR MORE	-
MALE LIVE BIRTHS PER 100 FEMALE LIVE BIRTHS	105.1

Between 1900 and 1982 the number of births has varied considerably. The general trend has been increasing numbers of births from 1900 through 1957 and declining numbers since that time. According to the annual enumeration of births by local officials in 1900 there were 45,024 births in Michigan. This figure dropped slightly to 44,722 in 1901 (the lowest total in the century). The number of births reported increased significantly with the initiation in 1906 of mandatory filing of individual certificates for each Michigan birth. Births increased during the next two decades, dropped temporarily in 1919, and then leveled off at just over 100,000 between 1924 and 1930. During the first years of the Great Depression, births declined from 102,596 in 1930 to 83,258 in 1933. Then from 1933 to 1957, excluding the war years of 1944 and 1945, births increased to a century high peak of 211,642 in 1957. Births in the next two decades dropped to a post-World War II low of 132,642 in 1976. Since 1976, the number of births increased, reaching 146,338 in 1980,then declined to 138,903 in 1982 (Table 1.1).

LIVE BIRTHS

The smallest number of live births officially recorded in this century was 43,221 in 1901. The actual number of live births was undoubtedly higher. Because of the method of recording many live births were probably not recorded. Figure 1.1 portrays the number of live births for Michigan from 1900 through 1982. Live births, which constitute a large percentage of total births, naturally followed the same pattern of increases and decreases, rising appreciably from 43,699 in 1900 to 208,488 in 1957, the peak year for this century. Between 1957 and 1976, live births decreased by 37 percent to 131,378, the lowest total in 31 years. In 1977, however, live births increased by 5.4 percent, the largest such increase since 1951. In each of the following three years the number of live births also increased. In 1980 there were 145,162 live births, the highest annual total since 1972. Since 1980 the number of live births declined by 5.0 percent, reaching 140,579 in 1981 and 137,950 in 1982.

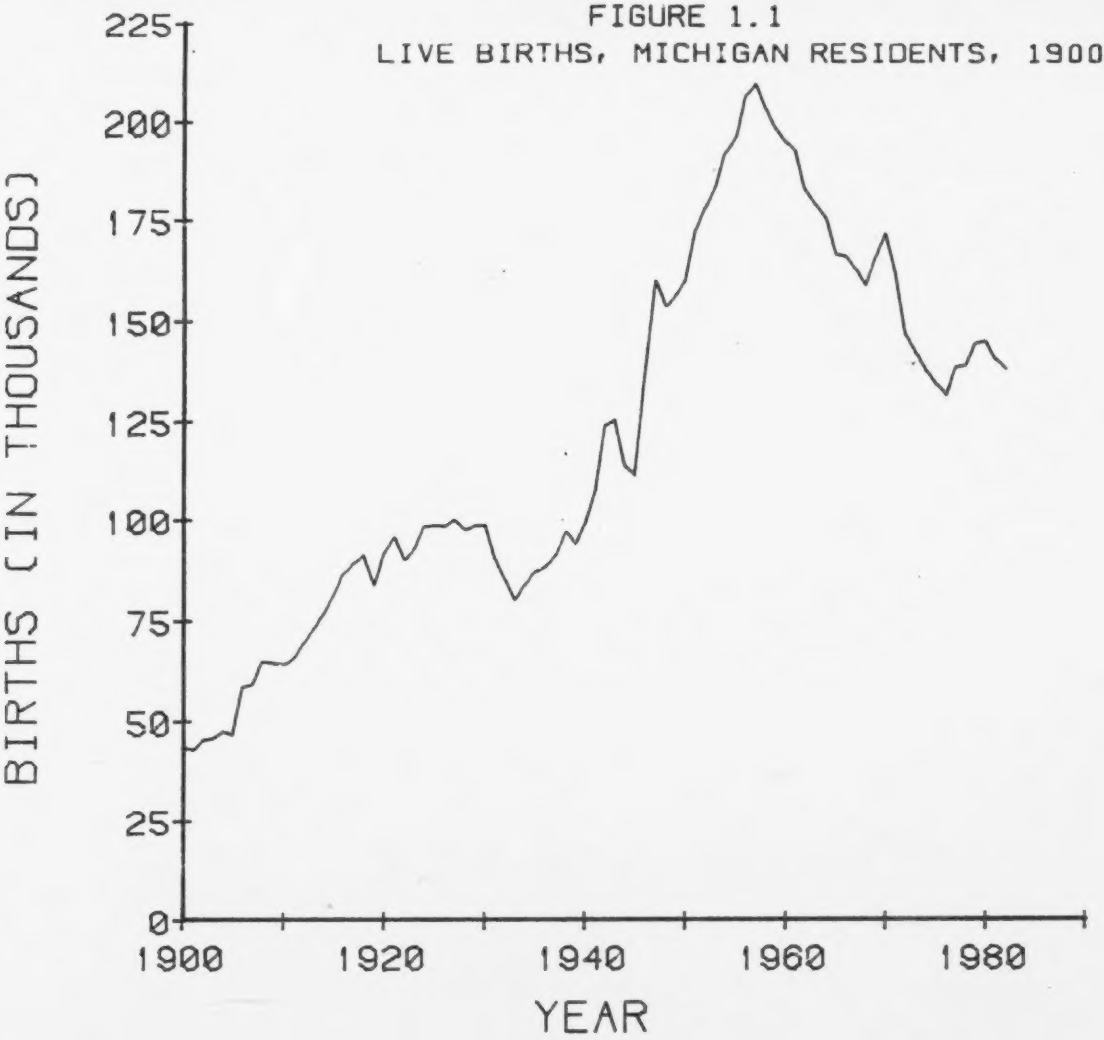
The national pattern is similar to that observed in Michigan. Live births increased from an estimated 2,718,000 in 1909 to an estimated 4,300,000 in 1957. Since 1957, there has been a general decline in live births. The low point occurred in 1973 when live births in the United States totaled 3,136,965. Unlike Michigan, the number of live births for the nation has increased in each of the last seven years. For 1982 the provisional figure was 3,704,000, an increase of 1.6 percent from the provisional number for 1981.

Table 1.1
Total Births, Michigan Residents, Selected Years, 1900-1982

YEAR	TOTAL BIRTHS
1900	45,024
1901	44,722
1910	66,668
1920	96,015
1930	102,596
1933	83,258
1940	101,708
1950	163,150
1957	211,642
1960	198,064
1970	173,727
1971	164,167
1972	148,624
1973	143,232
1974	138,852
1975	135,287
1976	132,642
1977	139,700
1978	140,003'
1979	145,627'
1980	146,297'
1981	141,619'
1982	138,903

'Revised.

FIGURE 1.1
LIVE BIRTHS, MICHIGAN RESIDENTS, 1900-1982



Another view of the historic pattern in live births may be obtained through examination of changes in the crude birth rate. By considering population size the historic pattern of live births is stabilized (Figure 1.2). The crude birth rate in Michigan ranges from a low of 14.4 in 1976 to a high of 27.4 in 1956. The crude birth rate increased from 22.1 in 1906, the first year for filing birth certificates, to 26.2 in 1916. During the period 1917 to 1933 Michigan's crude birth rate declined steadily, reaching 16.2. The birth rate rose over the next 23 years to a peak in 1956 (27.4). Between 1956 and 1976 Michigan's crude birth rate declined by 47 percent, falling to 14.4. By 1980 the crude birth rate had increased to 15.7. In 1982 the crude birth rate declined to 15.0.

National statistics since 1900 follow the same general pattern of rising and falling as observed in Michigan. The highest rate observed nationally over the period 1909 through 1982 was 30.1 in 1910, while the lowest was 14.6, occurring in both 1975 and 1976. United States live birth rates were above those observed in Michigan without exception from 1909 to 1941. Between 1942 and 1947, national rates were above those for the state twice. National birth rates were below Michigan rates from 1948 through 1974. For the past seven years the rate for the nation has been above that observed in Michigan. In 1982 the provisional rate for the United States was 16.0 (Table 1.2).

FERTILITY

The crude birth rates examined above are useful statistics for gauging overall trends in live births for specific geographic areas. Where attempts are made to interpret such trends, however, crude birth rates can be misleading. These rates do not incorporate specifically the size of the population capable of bearing children. This population subset, generally considered to be women between the ages of 15 through 44, does not always maintain a stable relationship with the total population. A measure for analyzing changing birth patterns that is more exact is the fertility rate. Since the fertility rate relates the number of live births to the female population of childbearing age, valid comparisons for various periods of time and various locations are possible.

A comparison of fertility rates for Michigan with those for the United States is presented in Table 1.3. The crude birth rate changes observed understate the recent decline in fecundity for both regions. Since 1960 the crude birth rate in Michigan has dropped 39.8 percent, while the fertility rate in 1982 was 49.9 percent below the 1960 rate. For the United States over this same period the crude birth rate

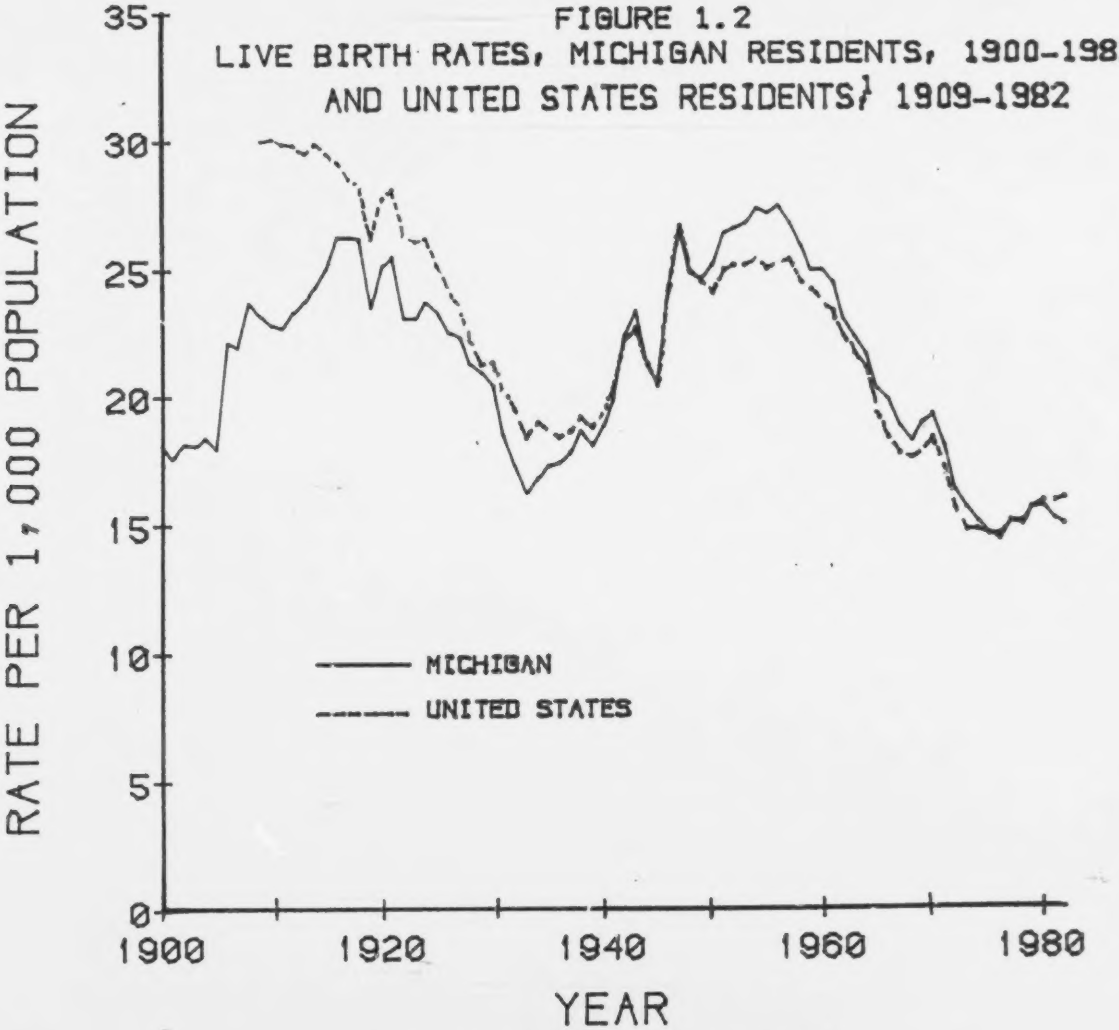


FIGURE 1.2
LIVE BIRTH RATES, MICHIGAN RESIDENTS, 1900-1982
AND UNITED STATES RESIDENTS,[1] 1909-1982

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[1] U.S. RATES PRIOR TO 1909 ARE NOT AVAILABLE.
U.S. 1981 AND 1982 FIGURES ARE PROVISIONAL.

Table 1.2

Live Births, and Crude Birth Rates, Michigan and United States[1] Residents, Selected Years, 1900-1982

UNITED STATES		YEAR	MICHIGAN	
LIVE BIRTHS	RATE		LIVE BIRTHS	RATE
---	---	1900	43,699	18.1
2,777,000	30.1	1910	64,109	22.8
2,950,000	27.7	1920	92,245	25.1
2,618,000	21.3	1930	98,882	20.4
2,559,000	19.4	1940	99,106	18.9
3,632,000	24.1	1950	160,055	25.1
4,257,850	23.7	1960	195,056	24.9
4,268,326	23.3	1961	192,825	24.4
4,167,362	22.4	1962	182,790	23.0
4,098,020	21.7	1963	178,871	22.3
4,027,490	21.0	1964	175,103	21.6
3,760,358	19.4	1965	166,464	20.3
3,606,274	18.4	1966	165,794	19.9
3,520,959	17.8	1967	162,756	18.9
3,501,564	17.5	1968	159,058	18.3
3,600,206	17.8	1969	165,760	19.0
3,731,386	18.4	1970	171,667	19.3
3,555,970	17.2	1971	162,244	18.1
3,258,411	15.6	1972	146,854	16.3
3,136,965	14.8	1973	141,550	15.6
3,159,958	14.8	1974	137,414	15.1
3,144,198	14.6	1975	133,931	14.7
3,167,788	14.6	1976	131,378	14.4
3,326,632	15.1	1977	138,416	15.1
3,333,279	15.0	1978	138,802	15.1
3,494,398	15.6	1979	144,452	15.6
3,612,258	15.9	1980	145,162	15.7
3,646,000Pr.	15.9Pr.	1981	140,579	15.2
3,704,000Pr.	16.0Pr.	1982	137,950	15.0

[1] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

Table 1.3
Fertility Rates, Michigan and United States[1]
Residents, Selected Years, 1900-1982

UNITED STATES	YEAR	MICHIGAN
---	1900	78.5
126.8	1910	99.0
117.9	1920	111.6
89.2	1930	87.6
79.9	1940	78.9
106.2	1950	110.5
118.0	1960	123.1
117.2	1961	119.0
112.2	1962	110.8
108.5	1963	106.6
105.0	1964	102.6
96.6	1965	95.9
91.3	1966	94.0
87.6	1967	90.8
85.7	1968	87.3
86.5	1969	89.6
87.9	1970	91.7
81.6	1971	84.5
73.1	1972	75.1
68.8	1973	71.2
67.8	1974	68.0
66.0	1975	65.5
65.0	1976	63.5
66.8	1977	65.9
65.5	1978	65.0
67.2	1979	66.6
68.4	1980	66.3
67.6Pr.	1981	63.2[2]
67.8Pr.	1982	61.7

[1] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.
[2] Revised.

declined 32.5 percent and the fertility rate fell by 42.5 percent. The proportion of the population in the childbearing ages has increased over this 20 year period.

Figure 1.3 displays the changes in the total fertility rate between 1920 and 1982 for Michigan and the United States (see also Table 4.4). The total fertility rate is a hypothetical measure of the number of live births that would occur to each 1,000 women during their reproductive life, if these women experienced the age-specific birth rates observed in a given year. Michigan's total fertility rate has generally paralleled that of the nation. The Michigan rate dropped from 3,195.5 in 1920 to 2,006.5 in 1933 and then increased between 1933 and 1957, reaching 4,100.0 in the latter year. Between 1957 and 1976 the total fertility rate in Michigan declined to a low of 1,709.5 in 1976. The rates for the following four years were slightly higher. In 1982 a new record low total fertility rate (1,632.5) was observed for Michigan. The rate was 1,815.0 in 1981 for the United States.

Since 1973 both Michigan and national total fertility rates have been below 2,000. A total fertility rate of over 2,000 is necessary for replacement of the parents since not all women survive the reproductive years nor do all children survive to adulthood. If the total fertility rate falls below 2,000 for a long period, a natural decrease in population will eventually result. It should be noted that although the total fertility rate has been below 2,000 since 1973 the rate of natural increase for Michigan remains positive. Over the period 1973 through 1982 there were 635,904 persons added to the population of Michigan through the excess of births over deaths.

RACIAL COMPOSITION

The racial composition of live births in Michigan changed over the period 1970 through 1982. Live births of white persons declined from 83.8 percent of all live births in 1970 to 81.2 percent in 1973. Since 1974, this percentage has held between 81.9 and 82.5. In 1982, the percentage was 82.5 as was observed in 1981. Live births of black persons increased from 15.7 percent of the total in 1970 to 18.2 percent in 1973. Between 1973 and 1982 this percent declined to 16.1. Live births of all other races increased from 0.4 percent in 1970 to 1.3 percent in 1981 and 1982. It should be noted that Indians from India were classified as white before 1978 and among other races since 1978. In absolute terms, the numbers of births of black and white infants declined between 1970 and 1976, with an especially sharp decline observed in births of white infants between 1970 and 1972. Between 1976 and 1980 the numbers of live births of white and black infants increased by 10.4 percent

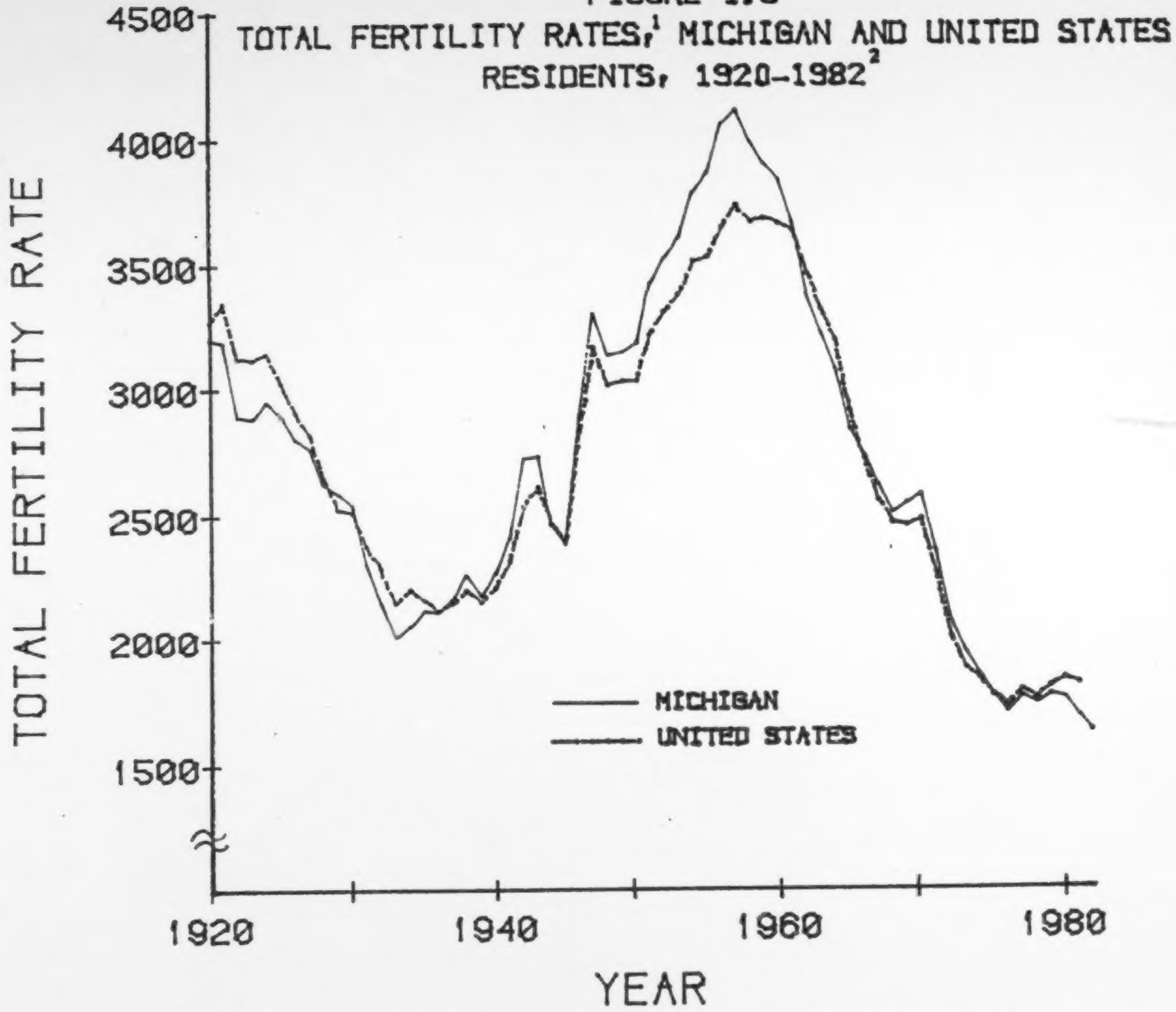


FIGURE 1.3
TOTAL FERTILITY RATES,[1] MICHIGAN AND UNITED STATES RESIDENTS, 1920-1982[2]

[1] Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.

[2] 1982 data for the United States are not available.

and 8.0 percent respectively. In 1981 the number of live births of white black, Chinese and Filipino infants declined while the number of live births of American Indians and the category other races increased. In 1982, declines occurred across all categories except for Chinese (Table 1.4).

Table 1.5 provides a comparison between crude birth rates and fertility rates for whites and other races in Michigan for the period since 1970. In 1970 the crude birth rate for other than white persons was 44.6 percent above that for whites. By 1972, this percentage had increased to 57.9 percent. In 1974, the percent dropped sharply to 42.3, and by 1982 it had fallen to 13.0. Paralleling the trends in numbers of live births, the crude birth rates for both groups declined between 1970 and 1976. Between 1976 and 1980 the crude birth rate for white persons increased by 10.2 percent, while that for other than white persons remained essentially unchanged. By 1982 the crude birth rates for white and other than white persons declined by 3.3 percent and 11.3 percent,respectively. The crude birth rate for white persons in 1982 was 20.7 percent below that observed in 1970 while the rate for the other than white group was 38.0 percent below the rate for 1970.

The fertility rates contained in Table 1.5 reveal that there are important differences in population structure for white persons compared to those of all other races. By comparing live births to the respective numbers of women aged 15-44 for these two groups, the relative differences in rates decrease. The fertility rate for other than white persons was 33.1 percent above the rate for white persons in 1970 and 6.7 percent higher in 1982. Since 1970 the fertility rate for other than white persons has declined 44.4 percent compared with a 30.7 percent drop for white persons.

AGE OF MOTHER

In 1982 45.8 percent of all live births were to women less than 25 years of age. Only 0.5 percent occurred to women 40 or more years of age. The median age of mothers was 25 years. Mothers of other than white infants were younger (median 24 years) than mothers of white children (median 25 years). Approximately 56 percent of the other than white infants were born to women aged 24 or less compared to 44.4 percent of the white infants. This differential is the result of the relatively large percentage of other than white live births to women at ages 15-19 (Table 1.6).

The total number of live births declined by 13.4 percent between 1972 and 1982 (Table 1.7). The largest relative declines occurred in the age groups over 39 and

Table 1.4
Live Births by Infant's Race[1] or National Origin, Michigan Residents, 1970-1982

YEAR	TOTAL ALL RACES	WHITE	BLACK	AMERICAN INDIAN	CHINESE	FILIPINO	OTHER[2]
1970	171,667	143,871	26,957	299	151	91	188
1971	162,244	134,165	27,245	313	135	101	177
1972	146,854	119,787	26,215	316	124	109	197
1973	141,550	114,878	25,741	302	124	121	187
1974	137,414	112,474	23,328	270	116	144	244
1975	133,931	109,718	23,224	294	151	138	226
1976	131,378	107,907	22,349	368	169	166	243
1977	138,416	114,042	23,195	431	157	153	276
1978	138,802	114,217	23,025	377	185	148	672
1979	144,452	118,671	24,010	435	150	160	820
1980	145,162	119,103	24,127	481	197	174	891
1981	140,579	115,972	22,705	526	190	140	942
1982	137,950	113,868	22,270	488	191	117	933

[1] Births of unknown race included in total only. Persons of Spanish or of Mexican-American descent are included with white.

[2] Includes Japanese, Hawaiian, other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977, and with "Other" since 1978.

Table 1.5
Crude Birth Rates and Fertility Rates by Race,[1] Michigan Residents, 1970-1982

CRUDE BIRTH RATE		YEAR	FERTILITY RATE	
WHITE RACE	ALL OTHER RACES		WHITE RACE	ALL OTHER RACES
18.4	26.6	1970	88.0	117.1
17.0	25.7	1971	80.3	111.4
15.2	24.0	1972	70.7	102.7
14.5	22.8	1973	67.0	96.8
14.2	20.2	1974	64.8	84.7
13.9	19.6	1975	62.7	81.6
13.7	18.5	1976	61.2	76.5
14.5	18.7	1977	63.9	76.6
14.5	18.4	1978	63.2	74.5
15.1	18.7	1979	64.8	75.4
15.1	18.6	1980	64.6	74.5
14.8	17.2	1981	62.4	67.9
14.6	16.5	1982	61.0	65.1
-20.7	-38.0	Percent Change, 1970-1982	-30.7	-44.4

[1] Births of unknown race are excluded.

Table 1.6
Live Births and Percent Distribution by Age of Mother and Race of Child, Michigan Residents, 1982

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Under 15 Years	319	0.2	107	0.1	211	0.9	1	1.2
15-19 Years	17,344	12.6	12,129	10.7	5,206	21.7	9	10.8
20-24 Years	45,586	33.0	37,609	33.0	7,950	33.1	27	32.5
25-29 Years	45,995	33.3	39,762	34.9	6,206	25.9	27	32.5
30-34 Years	22,564	16.4	19,288	16.9	3,263	13.6	13	15.7
35-39 Years	5,395	3.9	4,378	3.8	1,011	4.2	6	7.2
40 or More Years	740	0.5	589	0.5	151	0.6	-	-
Not Stated	7	0.0	6	0.0	1	0.0	-	-
Total	137,950	100.0	113,868	100.0	23,999	100.0	83	100.0
Median Age at Last Birthday	25	000	25	000	24	000	25	000

Table 1.7
Live Births and Population of Women by Age, Michigan Residents, 1972 and 1982

AGE GROUP	LIVE BIRTHS			POPULATION ESTIMATES		
	1972	1982	PERCENT CHANGE	1972	1982	PERCENT CHANGE
Under 20 Years[1]	28,611	17,663	-38.3	441,564	442,339	+0.2
20-24 Years	54,199	45,586	-15.9	393,988	465,380	+18.1
25-29 Years	40,442	45,995	+13.7	325,875	427,294	+31.1
30-34 Years	16,133	22,564	+39.9	275,390	381,098	+38.4
35-39 Years	5,805	5,395	-7.1	254,800	292,819	+14.9
40 and Over[2]	1,650	740	-55.2	264,020	227,129	-14.0
All Ages[3]	146,854	137,950	-6.1	1,955,637	2,236,059	+14.3

[1] Population shown is for females 15-19.
[2] Population shown is for females 40-44.
[3] Population shown is for females 15-44. Live births with age not stated are included only in the total.

under 20. The age groups 20-24 and 35-39 also experienced declines greater than that for women of all ages. The number of live births to women 25-29 was 13.7 percent higher in 1982 than in 1972, while there was a 39.9 percent increase in live births to women 30-34 years of age over the decade.

Table 1.7 also provides the age distribution of the childbearing population in 1972 and 1982. Between these years the number of women aged 15-44 years increased by 14.3 percent. The largest relative increase in population occurred in the age group 30-34 the age group with the greatest increase in live births between 1972 and 1982. The only group to experience a population decline was the 40-44 year age group.

AGE-SPECIFIC LIVE BIRTH RATES

As displayed in Table 1.8, a substantial reduction in the age-specific birth rates for Michigan females across all age groups has occurred since 1972. The greatest relative decreases in birth rates between 1972 and 1982 were for women over 34 years of age and for women under age 25 The birth rate for women 30-34 years old in 1982 was just above the rate for this age group in 1972.

Figure 1.4 displays age-specific live birth rates for the period 1970-1982. Birth rates in all age groups dropped between 1970 and 1976. For women under 20 years the birth rate continued to decline throughout the years 1976-1982. Between 1976 and 1980 birth rates for women in the age groups 30-34 and 35-39 increased by 24.5 percent and 9.3 percent respectively while the birth rates for women between 20 and 29 years of age and those over 39 years remained stable. In 1982 the birth rate declined from 1981 in all age groups before age 30 and increased in all age groups at 30 or over.

In 1970, women aged 20-24 had the highest birth rate of any age group, 14.3 percent higher than that of women aged 25-29. In 1976 and 1979 through 1982 the birth rate of women in the 25-29 year age group was above that of women aged 20-24. In 1982 the birth rate for the 25-29 year age group was 9.8 percent higher (Table 4.4).

Table 1.8 displays age-specific live birth rates for white women and women of all other races for the years 1972 and 1982. Generally, rates for other than white women were above those for white women. However, the live birth rate for white women between 25 and 29 years exceeded that for other than white women by 8.3 percent and 37.3 percent respectively in 1972 and 1982. In 1982 the rate for white women between 30 and 34 years also exceeded that for their

Table 1.8
Age-Specific Live Birth Rates by Race, Michigan Residents, 1972 and 1982

AGE GROUP	RACE[1]								
	TOTAL			WHITE			ALL OTHER[1]		
	1972	1982	PERCENT CHANGE IN RATE	1972	1982	PERCENT CHANGE IN RATE	1972	1982	PERCENT CHANGE IN RATE
Under 20[2] Years	64.8	39.9	-38.4	52.0	33.2	-36.2	146.3	73.1	-50.0
20-24 Years	137.6	98.0	-28.8	132.0	97.0	-26.5	171.6	102.4	-40.3
25-29 Years	124.1	107.6	-13.3	125.3	113.0	-9.8	115.7	82.3	-28.9
30-34 Years	58.6	59.2	+1.0	57.8	60.9	+5.4	62.9	50.5	-19.7
35-39 Years	22.8	18.4	-19.3	21.6	17.6	-18.5	30.7	23.0	-25.1
40 or Over[3]	6.2	3.3	-46.8	5.7	3.0	-47.4	9.9	4.6	-53.5
Total[4]	75.1	61.7	-17.8	70.7	61.0	-13.7	102.7	65.1	-36.6

[1] Data on race not stated are included only in the total columns.
[2] Age-specific birth rates for under 20 are based on female population 15-19.
[3] Age-specific birth rates for 40 and over are based on female population 40-44.
[4] Total birth rates (fertility rates) are based on female population 15-44.

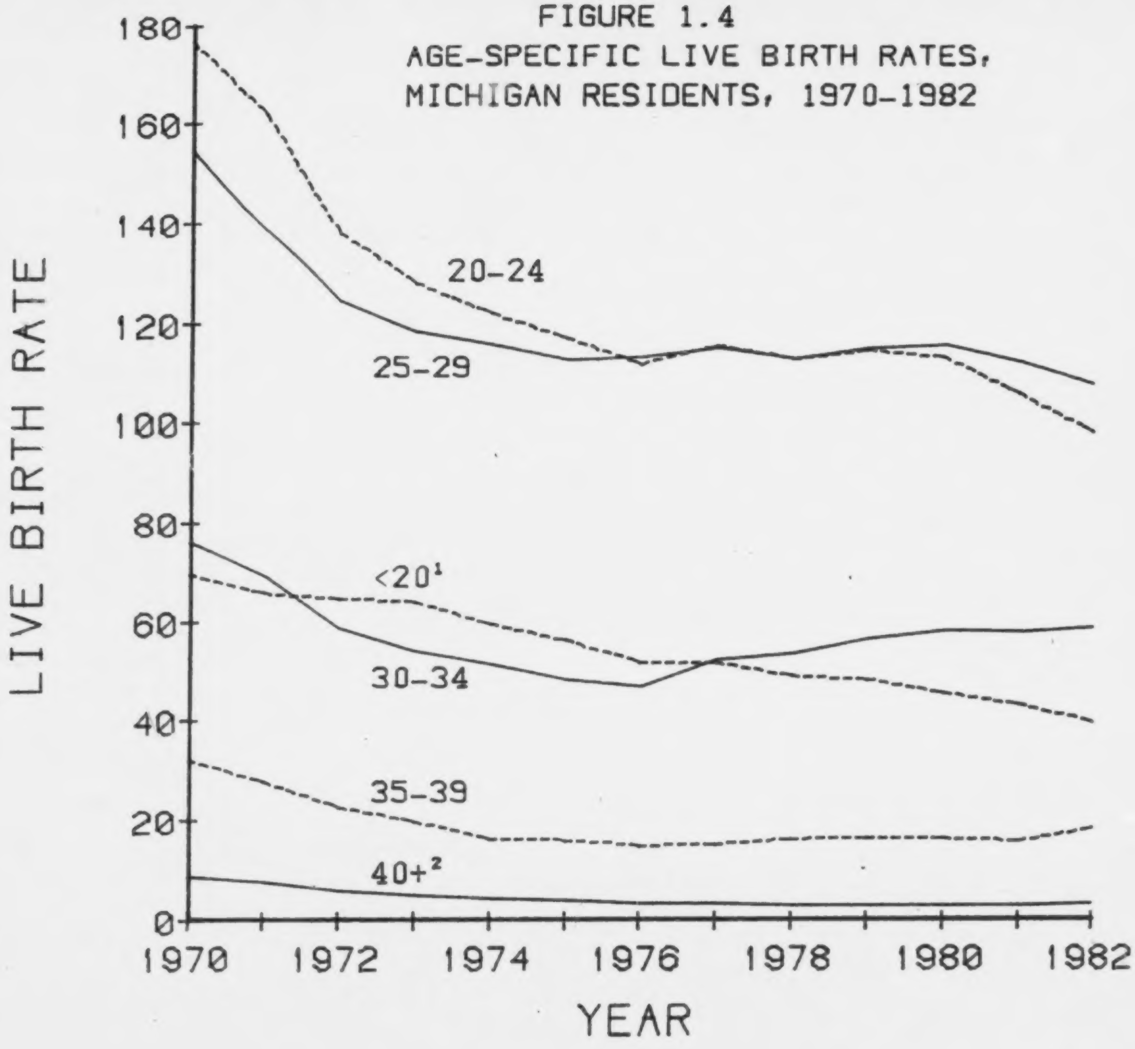


FIGURE 1.4
AGE-SPECIFIC LIVE BIRTH RATES,
MICHIGAN RESIDENTS, 1970-1982

[1] BASED ON LIVE BIRTHS TO WOMEN UNDER 20 AND POPULATION OF FEMALES 15-19.

[2] BASED ON LIVE BIRTHS TO WOMEN 40 OR OVER AND POPULATION OF FEMALES 40-44.

other than white counterparts (20.6 percent). Live birth rates declined over these ten years across all ages for both racial categories. The largest relative decreases in these rates were experienced by women of both racial groups who were 35 years or older and by other than white women under 20 years of age. The smallest declines were for white women aged 25-34.

BIRTH ORDER

The percent of live births which are first order births is displayed in Figure 1.5 for Michigan and the United States for the period since 1960. Between 1960 and 1970, the percent of first order births increased from 22.9 to 37.4 in Michigan and by 1980 the percent had increased to 42.4. The actual number of first births declined by 15.9 percent between 1970 and 1976, then increased between 1976 and 1980 by 13.9 percent. In 1982 the decline in the number of first births (3.8 percent) exceeded the decline in total live births (1.9 percent). The trend in first births has been similar for the United States.

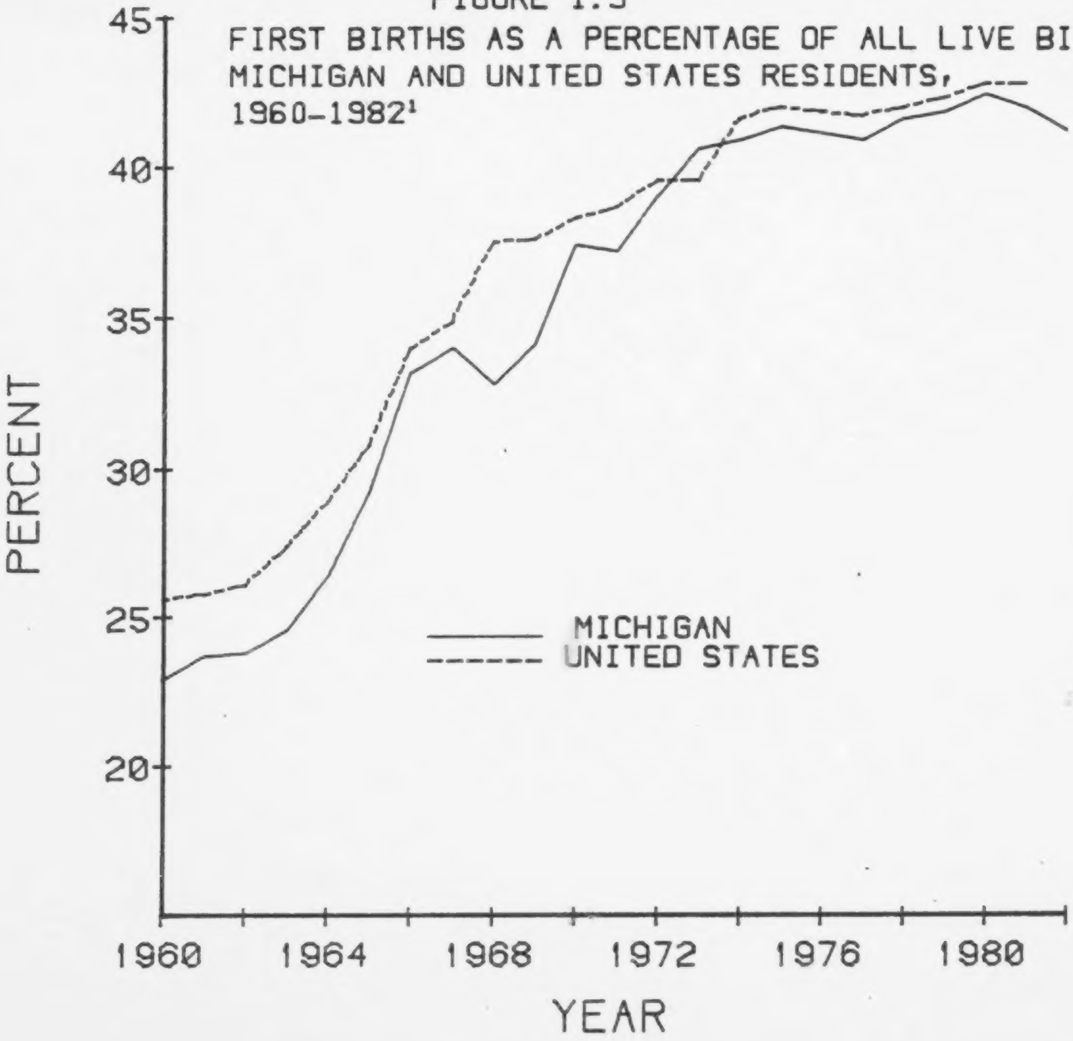
The distribution of Michigan resident live births by live birth order is displayed in Tables 1.10 and 1.11 for the years 1972 and 1982. There has been a considerable shift in recent years toward smaller families. First and second order live births comprised 68.5 percent of all live births in 1972 and 74.4 percent in 1982. On the other hand, 16.0 percent of all live births in 1972 were fourth or higher order live births. In 1982 the figure was 9.2 percent. The greatest relative decline occurred in fifth or higher order live births. These constituted 8.3 percent of all live births in 1972 compared to 3.5 percent in 1982.

Within each age group first and second order births comprised a greater percent of all births in 1982 than in 1972, with the shift increasing with the advancing age of the mother. First and second order births comprised 26.8 percent of all births to women 30-39 years of age in 1972 and 51.6 percent in 1982. Similarly 32.8 percent of all live births to women 25-29 years of age were first births in 1982, compared to 22.6 percent in 1972. While the numbers of births have declined for women under 25 across all birth orders, first order births rose at ages 25 and over, second order births increased at ages 25-29, and third order births rose at ages 30-39.

The median age of mothers having their first child increased from 21 to 23 between 1972 and 1982. For mothers having their second child, the median age increased from 24 to 26. The median ages for mothers having their third or fourth child each increased by one year between 1972 and 1982.

FIGURE 1.5

FIRST BIRTHS AS A PERCENTAGE OF ALL LIVE BIRTHS, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1982[1]



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[1] 1982 DATA FOR THE U.S. ARE NOT AVAILABLE.

Table 1.9
First Births, Michigan and United States Residents, Selected Years, 1960-1982

UNITED STATES		YEAR	MICHIGAN	
FIRST BIRTHS	PERCENT OF ALL BIRTHS		FIRST BIRTHS	PERCENT OF ALL BIRTHS
1,090,152	25.6	1960	44,711	22.9
1,157,386	30.8	1965	48,660	29.2
1,430,680	38.3	1970	64,222	37.4
1,375,668	38.7	1971	60,413	37.2
1,289,257	39.6	1972	57,477	39.1
1,243,358	39.6	1973	57,411	40.6
1,314,194	41.6	1974	56,233	40.9
1,319,126	42.0	1975	55,348	41.3
1,324,811	41.8	1976	54,003	41.1
1,387,143	41.7	1977	56,622	40.9
1,401,491	42.0	1978	57,767	41.6
1,479,260	42.3	1979	60,424	41.8
1,545,604	42.8	1980	61,516	42.4
---	---	1981	59,105	42.0
---	---	1982	56,879	41.2

Table 1.10
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1972

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	22,778	23,451	9,131	2,038	73	6	57,477	21
Second Birth	4,877	20,425	13,790	3,849	113	3	43,057	24
Third Birth	800	7,353	9,727	4,629	166	2	22,677	26
Fourth Birth	118	2,197	4,718	4,163	209	-	11,405	28
Fifth Birth or Greater	19	721	3,053	7,253	1,087	3	12,136	33
Not Stated	19	52	23	6	2	-	102	23
All Birth Orders	28,611	54,199	40,442	21,938	1,650	14	146,854	24

Table 1.11
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1982

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	14,105	22,122	15,094	5,481	76	1	56,879	23
Second Birth	3,010	16,319	17,324	8,955	90	3	45,701	26
Third Birth	435	5,358	9,015	7,032	107	2	21,949	27
Fourth Birth	53	1,228	3,014	3,535	137	1	7,968	29
Fifth Birth or Greater	12	332	1,314	2,794	322	-	4,774	32
Not Stated	48	227	234	162	8	-	679	26
All Birth Orders	17,663	45,586	45,995	27,959	740	7	137,950	25

First births to women 25 years of age or older comprised 15.9 percent of all first births in 1972 and 26.5 percent in 1982. Similarly, second order births to women 25 years or older increased from 32.0 percent of all second order births in 1972 to 37.9 percent in 1982. This change in mother's age at birth is reflective of the emergence of the 25-29 year age group as the group with the highest age-specific birth rate (Table 1.8).

INTERPREGNANCY TIME PERIOD

In 1972 50 percent of all live births to women with prior terminations were reported as being spaced at least 2 years and 7 months apart. By 1975 the median time span had increased to 2 years and 9 months. In 1976 and 1977 the median value was unchanged. By 1982 the median had declined to 2 years and 6 months.

The distribution of birth spacings was very similar in 1972 and 1982. In each year, about one third of the births to women with prior deliveries occurred one to two years after the most recent pregnancy termination. Another quarter of the births had spacings of two to three years. In both 1972 and 1982 fewer than 4 percent of the births occurred less than a year after the termination of the most recent prior pregnancy (Table 1.12).

In 1982 women having live births whose most recent prior termination was a fetal death had a median time span of 1 year and 10 months between their previous termination and a live birth (Table 1.13). This compares to a median of 2 years 8 months for prior live births. Although 1 to 2 years was the modal time span for both groups, the percent of women with prior fetal deaths in this interval (47.4) was much larger than that for women with prior live births (29.3). The greatest relative difference was associated with time spans of less than one year. A spacing of less than one year was observed for 11.5 percent of all women reporting their most recent prior pregnancy as a fetal death. This compares to 1.6 percent of all women reporting their most recent prior pregnancy as a live birth.

PRENATAL CARE

The most common month of pregnancy in which women first obtain prenatal care is the second month. In 1982 40.8 percent of all women having live births initiated care during the second month. The median number of prenatal visits was twelve, and 61.2 percent of all live births were to women receiving 10-14 prenatal visits. Table 1.14 indicates the relationship between the month of pregnancy prenatal care began and the number of prenatal visits. For

Table 1.12
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination, Michigan Residents, 1972 and 1982

TIME SPAN IN YEARS	1972		1982	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	90,156	100.0	84,569	100.0
Less Than One	3,448	3.8	2,980	3.5
1 < 2	27,854	30.9	27,331	32.3
2 < 3	23,365	25.9	21,536	25.5
3 < 5	21,148	23.5	19,058	22.5
5 or More . .	14,341	15.9	13,664	16.2
Median . . . Time Span . .	2 Years 7 Months	000	2 Years 6 Months	000

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

Table 1.13
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[2], Michigan Residents, 1982

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	84,569	100.0	16,843	100.0	67,726	100.0
Less Than One	2,980	3.5	1,930	11.5	1,050	1.6
1 < 2	27,331	32.3	7,694	45.7	19,637	29.0
2 < 3	21,536	25.5	3,058	18.2	18,478	27.3
3 < 5	19,058	22.5	2,443	14.5	16,615	24.5
5 or More . .	13,664	16.2	1,718	10.2	11,946	17.6
Median . . . Time Span . .	2 Years 6 Months	000	1 Year 10 Months	000	2 Years 8 Months	000

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] Fetal death as defined for the pregnancy history on the birth record is a fetal death of any gestational age.

Table 1.14
Live Births by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1982

MONTH CARE BEGAN	NUMBER OF VISITS								
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN	MEDIAN NUMBER OF VISITS
Total	137,950	1,127	4,383	28,875	84,423	13,173	2,842	3,127	12
First	17,143	-	141	1,551	10,890	3,413	862	286	13
Second	56,314	-	396	7,305	40,219	6,468	1,279	647	12
Third	36,847	-	540	8,313	24,391	2,524	475	604	11
Fourth	12,610	-	523	4,992	6,219	518	151	207	10
Fifth	5,940	-	603	3,327	1,726	148	43	93	8
Sixth	3,243	-	628	1,901	567	62	16	69	7
Seventh	1,840	-	579	1,018	184	13	6	40	6
Eighth	1,008	-	619	326	41	3	1	18	4
Ninth	362	-	275	37	20	1	2	27	2
No Care	1,127	1,127	-	-	-	-	-	-	-
Unknown	1,516	-	79	105	166	23	7	1,136	10

births in which the mother began receiving care in the first month, the median number of visits was 13. The median number of visits is lower as prenatal care begins later.

The proportion of live births to women who initially obtained prenatal care in the first trimester of pregnancy was 80.0 percent in 1982. This percent has increased steadily since 1970 when the figure was 69.0 (Figure 1.6).

There were also small but steady increases in the percent of births to women receiving care prior to the sixth month of pregnancy over the period 1970-1975. In 1970, 86.0 percent of all live births were to women who received care prior to the sixth month of pregnancy. By 1975, this had risen to 91.6 percent. The figure remained at that level through 1981. In 1982, the percent of all women who received care before the sixth month rose to 95.8 percent.

The proportion of births to women receiving early prenatal care varied considerably by race of infant and age of mother (Table 1.15). In 1982, 82.1 percent of white infants compared to 70.0 percent of other than white infants were born to mothers who began their prenatal care in the first trimester. Women 25-29 and 30-34 years of age sought care most promptly, with 86.1 percent and 87.0 percent, respectively, obtaining prenatal care in the first three months. The proportion of births to women receiving early prenatal care declined as maternal age increased or decreased, falling to 70.3 percent for women 40 years or over. Less than 6 in 10 (59.8 percent) mothers 15-19 years of age received care early, while only 32.0 percent of mothers under age 15 received care during the first trimester. Similar patterns by age of mother in this proportion are evident for white and other than white infants.

The time prenatal care began varied with live birth order (Table 1.16). The proportion of births to women who began care during the first trimester was highest for second order live births (82.8) and lowest for fifth or higher order births (66.6). Conversely, the proportion of births to women who began care during the third trimester, or received no care, was lowest (2.5 percent) for second order live births. This figure increased with the number of previous live births. Among fifth order live births 7.8 percent were to women who had received no care by the beginning of the 7th month of the pregnancy.

The proportion of births to mothers having ten or more prenatal visits was 72.8 percent in 1982, compared to 70.2 percent in 1980. This statistic varied considerably by race. While mothers of 76.0 percent of white infants had at least ten prenatal visits, the percent was only 58.0 for other than white infants (Table 1.17). For other than white

FIGURE 1.6

PERCENT OF WOMEN HAVING LIVE BIRTHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND THE 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1982

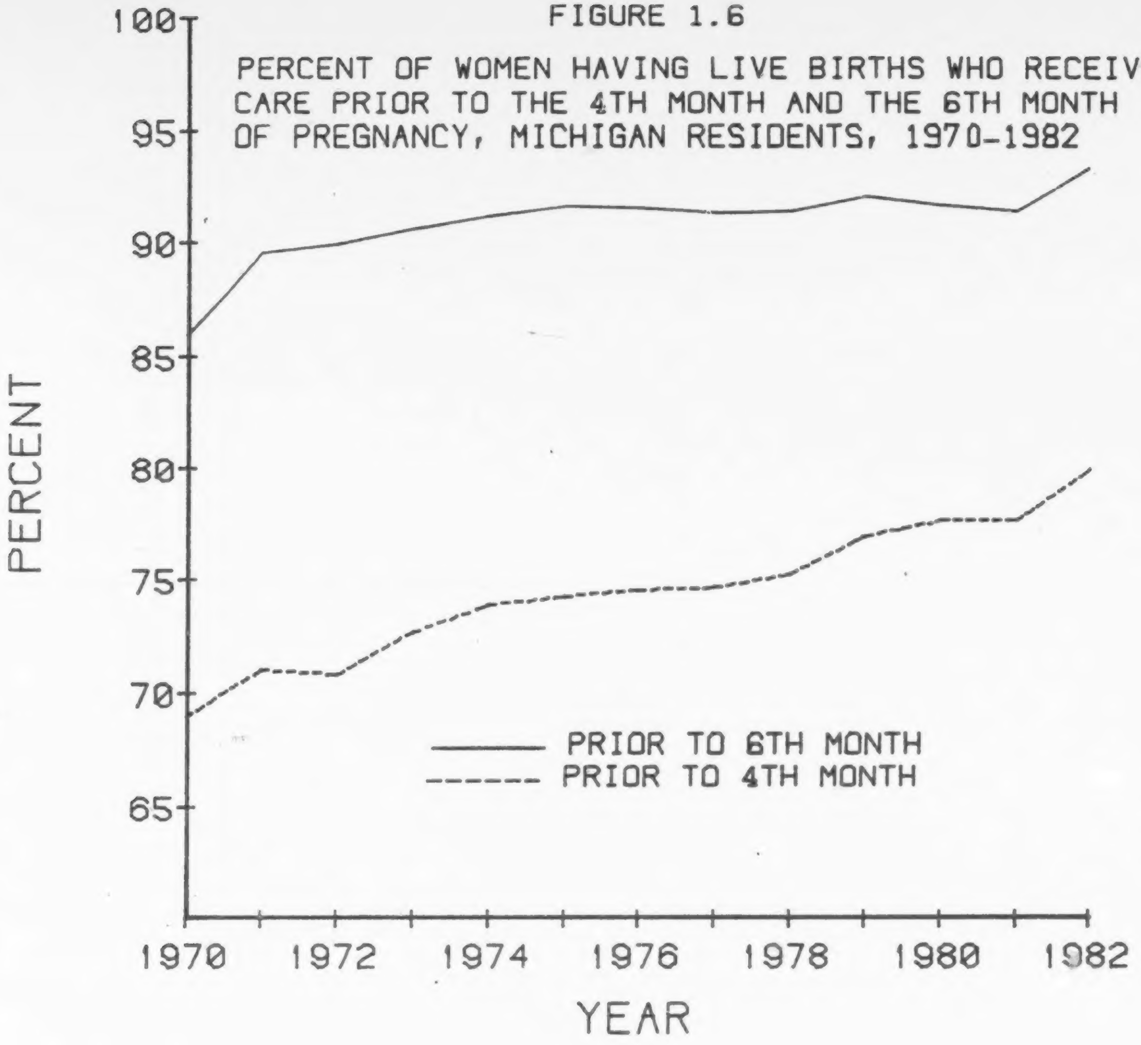

Table 1.15
Numbers and Percents of Live Births with Prenatal Care Beginning in the First Trimester by Age of Mother and Race of Child, Michigan Residents, 1982

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Under 15 Years .	102	32.0	26	24.3	76	36.0	-	*
15-19 Years . .	10,365	59.8	7,397	61.0	2,966	57.0	2	*
20-24 Years . .	35,616	78.1	29,986	79.7	5,620	70.7	10	37.0
25-29 Years . .	39,608	86.1	34,901	87.8	4,697	75.7	10	37.0
30-34 Years . .	19,629	87.0	17,069	88.5	2,554	78.3	6	46.2
35-39 Years . .	4,460	82.7	3,677	84.0	783	77.4	-	*
40 Years or Over	520	70.3	418	71.0	102	67.5	-	*
Not Stated . . .	4	*	4	*	-	*	-	*
Total	110,304	80.0	93,478	82.1	16,798	70.0	28	33.7

[1] Percent denominators obtained from Table 1.6.

Table 1.16
Live Births by Month of Pregnancy Prenatal Care Began and Live Birth Order, Michigan Residents, 1982

MONTH OF PREGNANCY CARE BEGAN	LIVE BIRTH ORDER						
	TOTAL	FIRST	SECOND	THIRD	FOURTH	FIFTH OR GREATER	NOT STATED
1st Month . .	17,143	7,160	6,036	2,597	870	434	46
2nd Month . .	56,314	23,328	19,570	8,861	2,857	1,478	220
3rd Month . .	36,847	14,784	12,245	6,127	2,237	1,266	188
4th Month . .	12,610	5,185	3,768	2,086	873	640	58
5th Month . .	5,940	2,629	1,621	907	432	326	25
6th Month . .	3,243	1,462	864	483	237	179	18
7th Month . .	1,840	824	473	276	128	129	10
8th Month . .	1,008	420	275	151	92	64	6
9th Month . .	362	134	119	57	18	30	4
No Care . . .	1,127	399	271	181	116	146	14
Not Stated . .	1,516	554	459	223	108	82	90
TOTAL	137,950	56,879	45,701	21,949	7,968	4,774	679
Percentage Beginning Care In First Trimester . .	80.0	79.6	82.8	80.1	74.8	66.6	66.9
Percentage Without Care During First Six Months . .	3.1	3.1	2.5	3.0	4.4	7.7	5.0

Table 1.17
Live Births and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Child, Michigan Residents, 1982

NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	1,127	0.8	518	0.5	609	2.5	-	-
1-4	4,383	3.2	2,585	2.3	1,797	7.5	1	1.2
5-9	28,875	20.9	21,979	19.3	6,888	28.7	8	9.6
10-14	84,423	61.2	73,536	64.6	10,865	45.3	22	26.5
15-19	13,173	9.5	10,874	9.5	2,294	9.6	5	6.0
20 or Over	2,842	2.1	2,079	1.8	762	3.2	1	1.2
Not Stated	3,127	2.3	2,297	2.0	784	3.3	46	55.4
Total	137,950	100.0	113,868	100.0	23,999	100.0	83	100.0
Median Number of Visits	12	000	12	000	10	000	11	000
Mean Number of Visits .	11.1	000	11.3	000	10.2	000	11.1	000

infants this percent declined between 1981 and 1982 (52.7 to 58.0). For white infants it increased (75.2 to 76.0). The median number of prenatal visits was 12 for mothers of white children and 10 for mothers of other than white children (excluding those having an unknown number of visits). The mean number of prenatal visits was 11.3 for mothers of white infants, 10.8 percent higher than the mean of 10.2 visits for mothers of infants of other races.

In 1982, 1,127 resident live births or 8.2 of every 1,000 live births occurred with the mother having had no prenatal care. This figure includes only those where it was specified that the mother received no prenatal care. The comparative statistic was 6.6 in 1981 and 12.3 in 1971. Those who received no prenatal care were for the most part younger mothers (median age of 22). Also, the lack of prenatal care is disproportionately high among mothers of other than white infants. The ratio of live births in which the mother received no prenatal care to the total number of live births was five times as large for other than white infants as for white infants in 1981 (Table 1.18).

BIRTH WEIGHT

The mean weight for all live births was 3,364 grams or approximately 7 pounds 7 ounces. The median weight was 3,402 grams or about 7 pounds 8 ounces (Table 1.19).

A subgroup of major importance when analyzing birth weight trends is the category of infants weighing 2,500 grams or less (approximately 5 pounds 8 ounces or less) at birth. Such infants have historically experienced higher mortality in their first year of life than heavier infants. In 1982, 69 of every 1,000 live births weighed 2,500 grams or less (Table 1.20).

The proportion of low birth weight infants varies with the race of the child, the age of the mother, and the amount of prenatal care the mother has received. Note that these three factors are interrelated. Very young mothers and mothers who are not white have fewer prenatal visits; women whose race is not white have higher birth rates in the younger age groups, etc. Tables 1.20 and 1.21 present data on these three variables with respect to birth weight.

The age group with the highest low birth weight ratio (122.3) was the group of mothers under 15 years of age. This ratio was lower for each succeeding age group through age group 25-29 (59.2) then increased for the older age groups to 102.7 for mothers 40 years or older (Table 1.20).

When low birth weight ratios are examined by the number of the mother's prenatal visits even more striking

Table 1.18
Live Births with No Prenatal Care by Age of Mother and Race of Child, Michigan Residents, 1982

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]
Under 15 Years . .	22	69.0	8	74.8	14	66.4	-	*
15-19 Years . . .	316	18.2	139	11.5	177	34.0	-	*
20-24 Years . . .	397	8.7	199	5.3	198	25.0	-	*
25-29 Years . . .	240	5.2	100	2.5	140	22.6	-	*
30-39 Years . . .	133	4.8	58	2.5	75	17.5	-	*
40 Years or Over .	19	25.7	14	23.8	5	33.1	-	*
Total	1,127	8.2	518	4.5	609	25.4	-	*
Median Age at Last Birthday	22	000	22	000	22	000	*	000

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[1] Ratio per 1,000 live births. Ratio denominators obtained from Table 1.6.

Table 1.19
Live Births by Birth Weight and Race, Michigan Residents, 1982

WEIGHT AT BIRTH	RACE			
	TOTAL	WHITE	ALL OTHER	NOT STATED
500 Grams or Less . .	272	134	138	-
501-1,000 Grams . . .	682	429	251	2
1,001-1,500 Grams . .	881	578	302	1
1,501-2,000 Grams . .	1,826	1,217	607	2
2,001-2,500 Grams . .	5,911	3,999	1,912	-
2,501-3,000 Grams . .	21,265	15,523	5,725	17
3,001-3,500 Grams . .	49,272	40,184	9,061	27
3,501-4,000 Grams . .	41,163	36,426	4,716	21
4,001-4,500 Grams . .	13,544	12,474	1,063	7
4,501 Grams or More .	3,065	2,846	217	2
Not Stated	69	58	7	4
Total	137,950	113,868	23,999	83
Mean Weight in Grams .	3,363.5	3,418.5	3,102.6	3,299.1
Median Weight in Grams	3,402.0	3,440.0	3,175.0	3,345.0

Table 1.20
Low Weight[1] Live Births and Low Birth Weight Ratios by Age of Mother and Race of Child, Michigan Residents, 1982

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
Under 15 Years . .	39	122.3	10	93.5	29	137.4	-	*
15-19 Years . . .	1,170	98.6	957	78.9	753	144.6	-	*
20-24 Years . . .	3,239	71.1	2,170	57.7	1,067	134.2	2	*
25-29 Years . . .	2,725	59.2	1,913	48.1	811	130.7	1	*
30-39 Years . . .	1,781	63.7	1,254	53.0	525	122.8	2	*
40 Years or Over .	76	102.7	51	86.6	25	165.6	-	*
Not Stated	2	*	2	*	-	*	-	*
Total	9,572	69.4	6,357	55.8	3,210	133.8	5	60.2
Median Age at Last Birthday	24	000	25	000	23	000	*	000

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[1] 2,500 grams or less.

[2] Ratio denominators obtained from Table 1.6.

variations are evident. The low birth weight ratio for the highest risk group was nearly eight times that of the group with the lowest ratio. The low birth weight ratio was highest when the mother had no prenatal care at 281.7. The ratio declined as the number of prenatal visits increased through 10-14 visits, where the ratio was 38.6. The low birth weight ratio was 70.7 for mothers with 20 or more prenatal visits. It is likely that a very high number of prenatal visits is associated with problems in the pregnancy (Table 1.21). For low birth weight infants the median number of the mother's prenatal visits was 9, compared to 12 for all infants. The mean number of visits for mothers of low birth weight infants was 9.2, 17.1 percent less than the mean of 11.1 for mothers of all infants. As low birth weight infants are more likely to have been born prematurely, the shorter prenatal period results in a reduction of the potential length of time for prenatal care.

Other than white infants have a substantially lower mean and median birth weight than white infants (Table 1.19). The low birth weight ratio for other than white infants was 133.8 compared with 55.8 for white infants (Table 1.21). Other than white infants and white infants show similar patterns of rising and falling ratios varying with changes in the age of the mother and frequency of prenatal visits. The low birth weight ratio for other than white infants varied from a high of 359.4 where the mother had no care to a low of 82.8 where the mother had 15-19 visits. The ratio for white infants varied from a high of 229.7 where the mother had no visits to a low of 29.2 where the mother had 15-19 prenatal visits (Table 1.21). Overall, the low birth weight ratio for other than white infants was 2.4 times the ratio for white infants. This is associated with a differential in the proportion of mothers having had fewer than 10 prenatal visits. While 22.0 percent of mothers having white infants had less than 10 prenatal visits, the corresponding figure for mothers having other than white infants was 38.7 percent (Table 1.17).

Examination of Table 1.20 reveals that the ratios for other than white infants vary less than those for white infants. For white infants the ratio associated with mothers under 15 years of age (93.5) is over twice that of mothers in the 25-29 year age group (48.1). For other than white infants the differential between the age groups with the highest and lowest ratios is less than 35 percent. The ratios for white and other than white infants are similar for mothers under age 15.

Figure 1.7 displays the low birth weight ratio for Michigan and the United States over the last twenty-two years. In 1960 this ratio was 72.0 for Michigan. Between 1960 and 1966 the ratio increased, reaching a high for the 22 year period in 1966 (79.8). Since that time the ratio

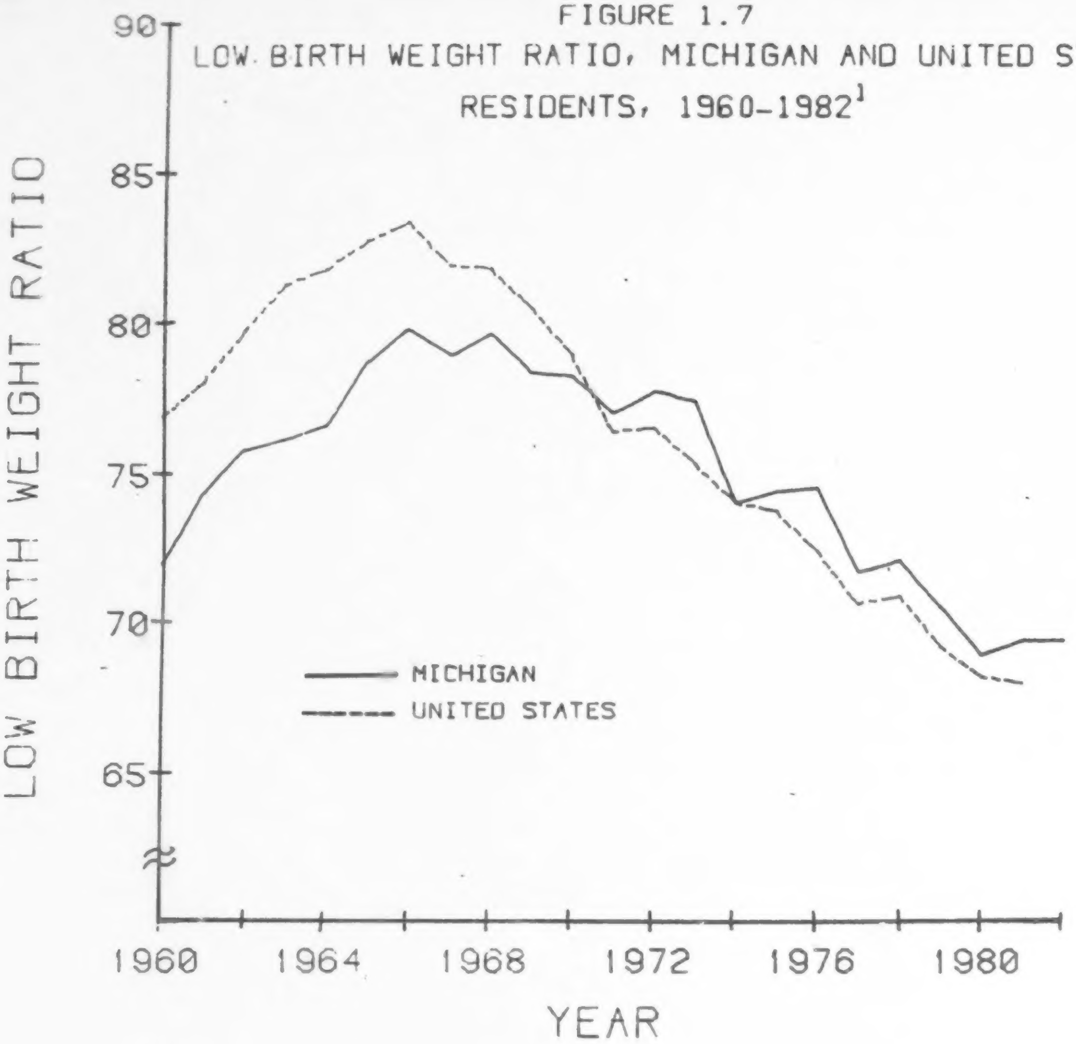
Table 1.21
Low Weight[1] Live Births and Low Birth Weight Ratios by Number of Prenatal Visits and Race of Child, Michigan Residents, 1982

NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
None	338	299.9	119	229.7	219	359.6	-	*
1-4	1,080	246.4	559	[illegible]	521	289.9	-	*
5-9	3,624	125.5	2,515	114.4	1,109	161.0	-	*
10-14	3,393	40.2	2,474	33.6	919	84.6	-	*
15-19	508	38.6	318	29.2	190	82.8	-	*
20 or Over	201	70.7	129	62.0	72	94.5	-	*
Not Stated	428	136.9	243	105.8	180	229.6	5	108.7
Total	9,572	69.4	6,357	55.8	3,210	133.8	5	60.2
Median Number of Visits	9	000	9	000	8	000	*	000
Mean Number of Visits .	8.8	000	9.2	000	8.1	000	*	000

[1] 2500 grams or less.
[2] Ratio denominators obtained from Table 1.17.

FIGURE 1.7

LOW BIRTH WEIGHT RATIO, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1982[1]



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[1] 1982 Data for the U.S. are not available.

has generally declined. The ratio for 1982 was 69.4,equal to 1981 and slightly higher than the rates of 68.9 for 1980. The pattern for the United States has been similar. The ratio increased from 76.9 in 1960 to 83.3 in 1966, and has since declined. In 1981 the low birth weight ratio for the nation was 68.0. The ratio for the United States was above that for Michigan each year from 1960 through 1970. Since then the ratio for the nation has been the same or lower than that of Michigan.

SEX OF INFANT

In 1982 51.3 percent of the infants born to Michigan residents were male. The proportion of males to females varies by race. The number of males per 1,000 females was 1,057 for white infants, 1,027 for blacks, 1,122 for American Indians, and 1,011 for infants of all other races (Table 1.22). For each race the low birth weight ratio for females is higher than for males. The ratio of 74.7 for females of all races is 16.2 percent above the corresponding ratio of 64.3 for males.

MOTHER'S EDUCATION

Educational attainment of women having live births in 1982 varied with their age (Table 1.23). Of all Michigan resident live births in 1982, 20.0 percent were to women who had not completed high school. The majority (62.7 percent) of mothers aged less than 20 had not completed high school. The percent of mothers with fewer than 4 years of high school dropped to 21.0 for those aged 20-24 and to 8.8 for mothers aged 25-34. This percent increased to 11.9 for mothers aged 35-39 and to 18.8 for mothers 40 years or older. Conversely, age of mother varied with the level of education. The median age of the mother was 21 years for those with 1 to 3 years of high school and 29 years for women with 4 or more years of college.

Birth order varies with the mother's education as well as her age. Table 1.24 indicates that although the median age of mothers increases with educational level, the first birth ratio (number of first live births per 100 live births) also varies directly with educational attainment. The first birth ratio for mothers with 4 or more years of college was 44.6 compared to 35.8 for mothers with 8 or fewer years of education. Within each age group there are increases in the first birth ratio as educational level rises beyond the category of 1 to 3 years of high school. For live births to women 20-24 years of age who had completed 4 or more years of college, 83.6 percent were to women with no previous live births, while only 21.8 percent of the live births to women of the same age who had

Table 1.22
Live Births, Low Weight Live Births, and Low Birth Weight Ratios, by Sex and Race, Michigan Residents, 1982

RACE	LIVE BIRTHS				LOW WEIGHT LIVE BIRTHS			LOW BIRTH WEIGHT RATIOS		
	TOTAL[1]	MALE	FEMALE	MALES PER 1,000 FEMALES	TOTAL[1]	MALE	FEMALE	TOTAL[1]	MALE	FEMALE
Total	137,950	70,704	67,242	1,051	9,572	4,543	5,026	69.4	64.3	74.7
White	113,868	58,503	55,362	1,057	6,357	3,039	3,316	55.8	51.9	59.9
Black	22,270	11,283	10,986	1,027	3,109	1,459	1,649	139.6	129.3	150.1
American Indian	488	258	230	1,122	28	14	14	57.4	54.3	60.9
Other	1,241	624	617	1,011	73	28	45	58.8	44.9	72.9
Unknown	83	36	47	766	5	3	2	60.2	*	*

[1] Records with sex not stated are included only in total columns.

Table 1.23
Live Births by Age and Education of Mother, Michigan Residents, 1982

AGE OF MOTHER	MOTHER'S EDUCATION							PERCENT WITH AT LEAST HIGH SCHOOL · EDUCATION
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE	NOT STATED	
Under 20 Years	17.663	1,120	9.962	5.898	591	5	87	36.8
20-24 Years	45.586	774	8.829	25,796	8.643	1,349	195	78.5
25-29 Years	45.995	559	3.834	21,176	12,447	7.825	154	90.1
30-34 Years	22,564	378	1,293	7,909	5,732	7,174	78	92.2
35-39 Years	5.395	174	470	1,926	1,090	1.707	28	87.5
40 or More Years	740	49	90	323	124	147	7	80.3
Not Stated	7	-	2	2	-	2	1	57.1
Total	137.950	3,054	24,480	63,030	28,627	18,209	550	79.6
Median Age at Last Birthday	25	22	21	24	26	29	24	000

Table 1.24
First Birth Ratios[1] by Age and Education of Mother, Michigan Residents, 1982

AGE OF MOTHER	MOTHER'S EDUCATION					
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE
Under 20 Years	79.9	73.1	76.7	85.1	93.6	*
20-24 Years	48.5	22.1	25.4	50.1	64.7	82.4
25-29 Years	32.8	10.9	11.0	26.5	36.4	56.7
30-34 Years	21.1	8.2	7.9	15.7	20.3	30.6
35 or More Years	13.1	4.9	4.8	10.9	11.9	20.0
Total	41.2	35.8	42.6	39.7	41.9	44.6

[1] First live births per 100 live births. Births where the mother's age and/or education are not stated are included in the total but are not reallocated to specific age and education categories.

completed the ninth grade or less were first births. Mothers with 1 to 3 years of high school had the lowest or second lowest first birth ratio within each age interval taken separately but the second highest total first birth ratio (42.6). This high overall ratio reflects the fact that a relatively large proportion of births to mothers with 1 to 3 years of high school occurred before the age of 20.

CONGENITAL ANOMALIES

One or more congenital anomalies were reported for 1,055 of the 137,950 resident live births in 1982 (Table 1.25). This translates to a rate of 76.5 per 10,000 live births.

In 1979 the 9th Revision of the International Classification of Diseases was introduced for the coding of reported congenital anomalies. Care should be exercised in making comparisons between the reported incidences of specific types of anomalies for years during which different revisions of the ICD were used to classify anomalies. In addition the frequency of reporting of specific anomalies is affected by the reporting schedule. Many conditions may not be apparent at the time the birth certificate is completed and filed.

The most frequently reported categories were ICD 754, certain congenital musculoskeletal deformities (including clubfoot), and ICD 755, other congenital anomalies of limbs (excluding those classified to 754), with 130 and 270 anomalies, respectively. When these categories are combined with the category 756, other congenital musculoskeletal anomalies, the total number of musculoskeletal system anomalies reported increases to 451, or 35.9 percent of all anomalies reported. There were 119 anomalies coded to ICD 752, congenital anomalies of genital organs.

Congenital anomaly rates by age of mother and race of child are presented in Table 1.26. The rates for all races combined increased with the age of the mother. The highest rates were experienced by mothers 40 years or over. The rates for ages below 35 were similar in 1982. Congenital anomaly rates for white infants show a stable rate to age 40 while rates for infants of other races increased progressively. For mothers under 35 years the rates for white and other than white infants were similar. The overall rate for white infants was 74.9 compared to 84.2 for infants of other races.

Figure 1.8 displays the rate of reported congenital anomalies for Michigan resident live births over the period 1960-1982. The rate has exhibited a cyclical pattern over this time period. The rate rose from 88.4 per ten thousand

Table 1.25
Congenital Anomalies[1] Reported by Type of Anomaly, Michigan Residents, 1982

TYPE OF ANOMALY	ICD[3] NUMBER	NUMBER OF CONDITIONS[4]	RATE PER 10,000 LIVE BIRTHS
Other congenital anomalies of limbs	755	270	19.6
Certain congenital musculoskeletal deformities	754	130	9.4
Cleft palate and cleft lip	749	125	9.1
Congenital anomalies of genital organs	752	119	8.6
Congenital anomalies of the integument	757	66	4.8
Chromosomal anomalies	758	61	4.4
Other congenital anomalies of heart	746	58	4.2
Other congenital anomalies of nervous system	742	56	4.1
Other congenital anomalies of circulatory system	747	55	4.0
Other congenital musculoskeletal anomalies	756	51	3.7
Other and unspecified congenital anomalies	759	44	3.2
Anencephalus and similar anomalies	740	39	2.8
Spina bifida	741	36	2.6
Congenital anomalies of urinary system	753	32	2.3
Congenital anomalies of ear, face and neck	744	28	2.0
Other congenital anomalies of upper alimentary tract	750	23	1.7
Other congenital anomalies of digestive system	751	23	1.7
Congenital anomalies of eye	743	20	1.4
Congenital anomalies of respiratory system	748	20	1.4
Bulbus cordis anomalies and anomalies of cardiac septal closure	745	15	1.1
At Least One Anomaly[2]		1,055	76.5

[1] Indicates anomalies apparent soon after a live birth.

[2] Does not equal the sum of anomalies specified because of multiple anomaly occurrences.

[3] Ninth Revision International Classification of Diseases, WHO.

[4] Includes three digit duplicates if fourth digit is different, permitting total counting of distinct conditions.

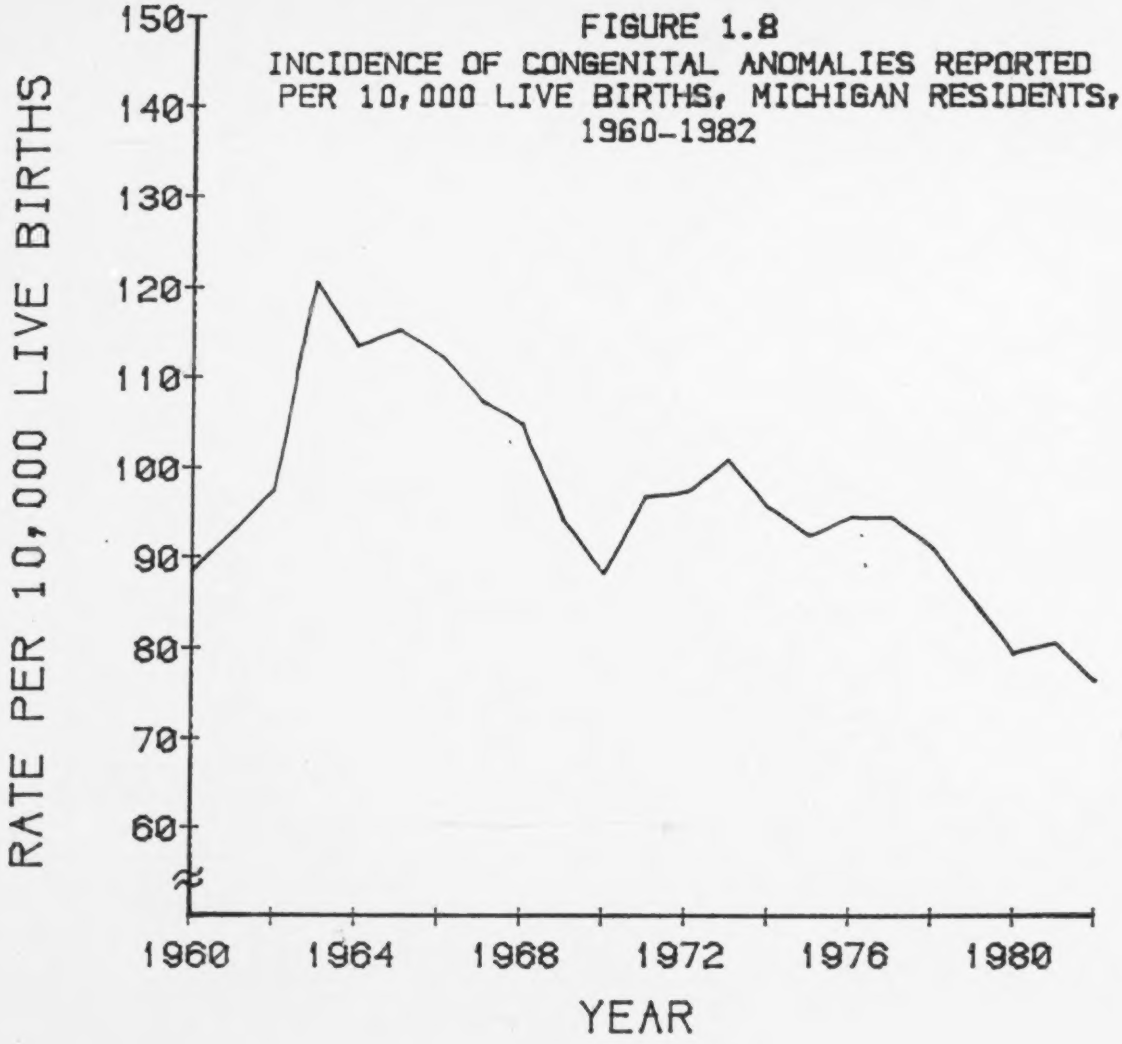

FIGURE 1.8
INCIDENCE OF CONGENITAL ANOMALIES REPORTED
PER 10,000 LIVE BIRTHS, MICHIGAN RESIDENTS,
1960-1982

Table 1.26
Live Births with Congenital Anomalies Reported and Congenital Anomaly Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1982

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
Under 15 Years	1	*	-	*	1	*	-	*
15-19 Years	128	73.8	91	75.0	37	71.1	-	*
20-24 Years	359	78.8	294	78.2	65	81.8	-	*
25-29 Years	340	73.9	285	71.7	55	88.6	-	*
30-34 Years	173	76.7	143	74.1	30	91.9	-	*
35-39 Years	46	85.3	34	77.7	12	118.7	-	*
40 Years or Over	8	108.1	6	101.9	2	*	-	*
Total	1,055	76.5	853	74.9	202	84.2	-	*
Median Age at Last Birthday	25	000	25	000	24	000	*	000

[1] Number of live births with congenital anomalies reported per 10,000 live births.
[2] Rate denominators obtained from Table 1.6.

live births in 1960 to 120.6 in 1963. By 1970 the rate had returned to the level of 1960 (88.3). The rate then rose to 100.8 in 1973. Since 1973 the rate has declined by 24.1 percent. The rate of 76.5 for 1982 is slightly below the rate of 80.7 in 1981.

COMPLICATIONS

The numbers of deliveries with specific types of complications reported are shown in Table 1.27. These data represent entries in three boxes on the live birth certificate: complications of pregnancy, concurrent illnesses or conditions affecting this pregnancy, and complications of labor and/or delivery. It is important to note that these items are under-reported on the birth certificate. Some conditions or procedures, such as obstetrical operations, may be routinely performed by some physicians, and hence not be considered "complications". In addition to valid complications there are also inappropriate terms entered, such as "prematurity", "spontaneous delivery", or "home delivery". These inappropriate terms were omitted in the tabulations of complications shown in Tables 1.27 and 1.28. The total number of deliveries with entries in one or more of the three "complication" boxes was 39,465. Of these, 37,124 (94.1 percent) had one or more valid complications. This is a rate of 26.9 per 100 live births.

It should be noted that in some cases the code used to describe the complication is dependent on the box in which the entry is found, while in other cases the same code is given regardless of the box used. An example of the latter situation is chronic hypertension, which is shown in Table 1.27 under the heading "Concurrent illnesses or conditions affecting this pregnancy" regardless of the box in which it was entered on the birth certificate. Thus, there were 7,366 deliveries (534.0 per 10,000 live births) with one or more entries which were coded to the various categories under the heading "Concurrent illnesses or conditions affecting this pregnancy", while the number of births with one or more entries in the box bearing this title on the birth certificate was only 5,167 (374.6 per 10,000 live births). This latter figure is comparable to the rate of 308.2 reported for 1978, as prior to 1979 specific types of complications were not coded and tabulated. Rates presented for "Concurrent illnesses or conditions affecting this pregnancy", "Complications of pregnancy", and "Complications of labor and/or delivery" were derived from the numbers of records with entries in these boxes.

Among the most commonly reported maternal conditions not directly related to the pregnancy were chronic hypertensive disease, diabetes mellitus, and previous

Table 1.27
Live Births with Specific Types of Complications Reported, Michigan Residents, 1982

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Concurrent illnesses or conditions affecting this pregnancy	7,366	534.0
Chronic circulatory and genitourinary diseases in mother	1,948	141.2
Chronic rheumatic heart disease	65	4.7
Chronic hypertensive disease	1,268	91.9
Other chronic diseases and congenital anomalies of heart and circulatory system	156	11.3
Chronic diseases of genitourinary system	487	35.3
Other maternal conditions	5,695	412.8
Syphilis	6	0.4
Gonorrhea and other VD, excluding syphilis	165	12.0
Diabetes mellitus	829	60.1
Influenza	7	0.5
Rubella	5	0.4
Injury	33	2.4
Prior operations (excluding previous cesarean section)	146	10.6
Previous cesarean section	2,308	167.3
Narcotic or drug user	334	24.2
Obesity	201	14.6
Hepatitis	18	1.3
Anemia	145	10.5
Pneumonia	34	2.5
Bronchitis	40	2.9
Emphysema	-	0.0
Epilepsy	76	5.5
Asthma	120	8.7
Alcohol Abuse	24	1.7
Overdose of Aspirin	-	0.0
All other maternal conditions	1,251	90.7
Unknown type of maternal condition	208	15.1
Toxemia of pregnancy	2,123	153.9
Hypertensive disease arising during pregnancy	39	2.8
Pre-eclampsia of pregnancy	1,488	107.9
Eclampsia of pregnancy	38	2.8
Hyperemesis gravidarum	87	6.3
Toxemia superimposed on pre-existing hypertensive cardiovascular disease	83	6.0

Table 1.27 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Other and unspecified toxemia of pregnancy	539	39.1
Maternal ante- and intrapartum infection	879	63.7
Infections of genital tract	162	11.7
Pyelitis and pyelonephritis	49	3.6
Other infections of urinary tract	267	19.4
Infections of amniotic fluid	148	10.7
Other infections	281	20.4
Difficult labor with disproportion or abnormality of organs and tissues of the pelvis	3,951	286.4
Difficult labor with malposition of fetus	4,173	302.5
Breech presentation	2,891	209.6
Transverse presentation	239	17.3
Brow presentation	57	4.1
Face presentation	98	7.1
Compound or shoulder presentation	62	4.5
Other specified presentation	371	26.9
Unspecified presentation	507	36.8
Difficult labor with abnormality of forces of labor	984	71.3
Primary uterine inertia	246	17.8
Secondary uterine inertia	178	12.9
Prolonged second stage	193	14.0
Precipitate birth	300	21.7
Other and unspecified abnormality of forces of labor	72	5.2
Other and unspecified difficult labor	1,024	74.2
Laceration of pelvic organs	630	45.7
Conditions of placenta and fetal membranes	1,653	119.8
Placenta previa - partial	470	34.1
Placenta previa - complete	28	2.0
Premature separation of placenta - partial	746	54.1
Premature separation of placenta - complete	10	0.7
Placental insufficiency	54	3.9
Delivery complicated by retained placenta	309	22.4

Table 1.27 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Other and unspecified abnormalities of placenta and fetal membranes	84	6.1
Conditions of umbilical cord	3,203	232.2
Other complications of pregnancy and childbirth	10,304	746.9
Incompetent cervix	285	20.7
Premature rupture of membranes	3,248	235.4
Hydramnios	122	8.8
Ectopic pregnancy	6	0.4
Abortion - any type	13	0.9
Destructive operation on live fetus to facilitate birth	12	0.9
Multiple pregnancy	1,063	77.1
Hemorrhage or threatened abortion	694	50.3
RH incompatibility	282	20.4
Anemia of pregnancy	242	17.5
All other complications of pregnancy and childbirth	4,891	354.5
Unknown type of complication of pregnancy and childbirth	213	15.4
Obstetrical operations	18,753	1,359.4
Antepartum obstetrical procedures	96	7.0
Operations inducing labor or assisting delivery	2,338	169.5
Cesarean section	16,208	1,174.9
Operations after delivery or abortion	1,657	120.1
At least one complication	37,124	2,691.1

[1] Sum of subcategories may not equal total for category due to the occurrences of multiple complications.

Table 1.28
Live Births with Complications Reported and Complication Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1982

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
Under 15 Years . .	78	24.5	21	19.6	57	27.0	-	*
15-19 Years . . .	4,545	26.2	3,083	25.4	1,461	28.1	1	*
20-24 Years . . .	11,842	26.0	9,440	25.1	2,398	30.2	4	*
25-29 Years . . .	12,277	26.7	10,332	26.0	1,941	31.3	4	*
30-34 Years . . .	6,417	28.4	5,296	27.5	1,118	34.3	3	*
35-39 Years . . .	1,707	31.6	1,334	30.5	371	36.7	2	*
40 Years or Over .	257	34.7	192	32.6	65	43.0	-	*
Unknown	1	*	1	*	-	*	-	*
Total	37,124	26.9	29,699	26.1	7,411	30.9	14	16.9
Median Age at Last Birthday	25	000	26	000	24	000	*	000

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[1] Number of live births with complications reported per 100 live births.

[2] Rate denominators obtained from Table 1.6.

Cesarean sections, which were reported 1,268, 829, and 2,308 times, respectively, in 1982. Toxemia of pregnancy was reported for 2,123 deliveries (153.9 per 10,000). The most common form was pre-eclampsia of pregnancy, which was reported 107.9 times per 10,000 deliveries. Various forms of difficult labor were reported in approximately 7 percent of all deliveries. There were 1,653 deliveries complicated by conditions of the placenta and fetal membranes, and 3,203 by conditions of the umbilical cord. Premature rupture of membranes was reported for 3,248 deliveries. There were 16,208 deliveries reported as Cesarean sections. It should be noted that the type of delivery is not a question on the birth certificate, so that the rate of 1,174.9 Cesarean sections per 10,000 deliveries undoubtedly understates the true rate.

In 1982 new codes were introduced for specific types of maternal conditions which had previously been lumped in the category "all other maternal conditions". The conditions which were coded for the first time in 1982 were pneumonia, bronchitis, emphysema, epilepsy, asthma, alcohol abuse, and overdose of aspirin. If these conditions had been included in the category "all other maternal conditions", the total in 1982 for this category would have been 1,251.

The distribution by age of mother and race of infant for deliveries with complications reported is shown in Table 1.28. The rates were similar for mothers under age 30. Older mothers were more likely to experience complications. The rate increased from 26.7 percent for mothers 25-29 years to 34.7 percent for mothers 40 years or over. The median age of mothers for births with complications reported was 25 years, the same as for all live births. Similar patterns of variation by age of mother were observed for white and other than white infants. The rate for other than white infants was higher than for white infants in all age groups. Overall the rate for other than white infants was about 20 percent higher (30.9 compared to 26.1).

PLACE OF OCCURRENCE

Of some confusion to persons not familiar with vital records data is the difference between occurrence and residence figures. Information on events to residents of Michigan that occur throughout the country and, in some instances, outside its boundaries is collected in order to obtain the full scope of activity for the state population. In 1982 1,445 Michigan resident live births occurred outside the state. Information on these events is forwarded to the state of Michigan for statistical purposes only. While only 1.0 percent of the total for the state is involved, statistics for the counties on Michigan's southern and northwestern borders would be strongly affected were this information not available.

Table 1.29 shows the four major geographic areas where Michigan resident live births occur outside the state. These four border areas comprise 89.1 percent of all resident live births that occurred out of state. Live births to Michigan residents occurred in 37 of the 50 states in 1982 and in the District of Columbia.

The number of nonresident live births that occurred in Michigan in 1982 was 622. Information about those events was shared with the appropriate states by the State of Michigan under specific confidentiality guidelines so they might have a complete statistical file on their residents. The border areas comprised 67.5 percent of these events, as shown in Table 1.29. There were live births in Michigan to residents of 36 states and at least 5 foreign countries.

PLACE OF BIRTH

In 1982 99.35 percent of the 137,127 infants born in Michigan were delivered in hospitals. There were 707 infants born at home, and 184 other non-hospital deliveries (Table 1.30). While the percentage of infants not born in hospitals is still very small, the number of home deliveries and other out-of-hospital births has increased in recent years. Between 1973 and 1982 the number of infants born at home increased by 150 percent. The proportion of all live-born infants who were delivered at home increased from 0.20 percent in 1973 to 0.52 percent in 1982 (160 percent increase).

ATTENDANT AT BIRTH

Data in Table 1.31 reveal that 99.3 percent of the live births which occurred in Michigan were attended by a physician, either an M.D. or D.O. There were 291 live births attended by the mother's husband, while nurses delivered 110 infants and midwives and nurse-midwives delivered 264 babies. During 1982 there were 94 infants born to unattended women.

Of the 707 infants born in the mother's home only 9.9 percent were attended by a physician, while an 37.1 percent were attended by the husband.

Table 1.29
Michigan Resident Live Births Occurring Outside of Michigan by Place of Occurrence, and Live Births Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1982

GEOGRAPHIC AREA	LIVE BIRTHS TO RESIDENTS OCCURRING OUTSIDE MICHIGAN		LIVE BIRTHS TO NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total . . .	1,445	100.0	622	100.0
Illinois .	29	2.0	24	3.9
Indiana . .	350	24.2	132	21.2
Ohio . . .	451	31.2	77	12.4
Texas . . .	9	0.6	51	8.2
Wisconsin .	450	31.1	199	32.0
Canada . .	37	2.6	12	1.9
Other Areas	119	8.2	127	20.4

Table 1.30
Live Births by Place of Delivery, Michigan Occurrences, 1973-1982

YEAR	PLACE OF DELIVERY						
	TOTAL	HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1973	140,359	139,983	99.73	282	0.20	94	0.07
1974	136,418	136,049	99.73	282	0.21	87	0.06
1975	132,777	132,354	99.68	313	0.24	110	0.08
1976	130,253	129,714	99.59	375	0.29	164	0.13
1977	137,140	136,503	99.54	489	0.36	148	0.11
1978	137,896	137,119	99.44	573	0.42	204	0.15
1979	143,240	142,437	99.44	619	0.43	184	0.13
1980	144,077	143,257	99.43	645	0.45	175	0.12
1981	139,415	138,604	99.42	646	0.46	165	0.12
1982	137,127	136,236	99.35	707	0.52	184	0.13

[1] Does not include births in hospitals without a maternity ward.

Table 1.31
Live Births by Place of Delivery and Type of Attendant, Michigan Occurrences, 1982

ATTENDANT	PLACE OF DELIVERY							
	TOTAL		HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	137,127	100.0	136,236	100.0	707	100.0	184	100.0
Physician, M.D.	116,682	85.1	116,585	85.6	49	6.9	48	26.1
Physician, D.O.	19,508	14.2	19,468	14.3	21	3.0	19	10.3
Husband	291	0.2	4	0.0	262	37.1	25	13.6
Nurse	110	0.1	100	0.1	8	1.1	2	1.1
Midwife	187	0.1	-	-	164	23.2	23	12.5
Physician's Asst.	4	0.0	4	0.0	-	-	-	-
Nurse-Midwife[2]	77	0.1	68	0.0	7	1.0	2	1.1
Other	167	0.1	7	0.0	116	16.4	44	23.9
Unattended	94	0.1	-	-	77	10.9	17	9.2
Unknown	7	0.0	-	-	3	0.4	4	2.2

[1] Does not include births in hospitals without a maternity ward.

[2] May or may not be certified by the American College of Nurse Midwives.

FETAL DEATHS

There were 1,325 fetal deaths reported in 1900. The number of reported fetal deaths increased from 1900 through 1916 and by 1916 there were 3,689 reported fetal deaths (Figure 1.9). The numbers of such deaths were relatively stable from 1916 through 1930, with the peak year for the period being 1927. This year marked the highest frequency of occurrence in this century with 3,834 fetal deaths. Over the period 1930 through 1939, fetal deaths declined to 2,572. Fetal deaths then increased through 1943, decreased in 1944 and 1945, and increased again to 3,422 in 1947. Fetal deaths numbered between 3,000 and 3,250 in the period 1948 to 1958. In the 1960's and 70's the number of reported fetal deaths declined sharply. By 1976, the number fell to 1,264, the lowest number reported in this century. After a slight increase in 1977 (1,284) new lows were recorded in each of the following four years. The number of Michigan resident fetal deaths was 953 in 1982.

The fetal death ratio for Michigan has declined through most of the twentieth century (Figure 1.10 and Table 4.2). The ratio rose from 30.3 in 1900 to 43.5 in 1905. Through the teens and early twenties, this ratio fluctuated between 38 and 42, never reaching the peak ratio observed in 1905. In 1922, Michigan's fetal death ratio was 42.0. The year 1922 marks a turning point, as fetal death ratios have generally declined since this year. The low ratio of 1900 was first succeeded by a new low ratio in 1936 (29.7). Over the next 45 years, new lows have been established repeatedly, as the fetal death ratio continues to decline. The ratio in 1982 was 6.9, the lowest observed in this century.

National fetal death data are presented in Figure 1.10 and Table 1.32. Michigan's fetal death ratios have generally been below national ratios. In fact, the United States ratio has been below that for Michigan in only nine of the 57 years for which national data are available. The last time the United States ratio was below the Michigan ratio was in 1950. In 1978, the Michigan ratio was 9.3 percent below the national ratio of 9.7. It should be noted that fetal deaths in Michigan are comprised of stillbirths that have passed through 20 weeks gestation or which weigh 400 grams or more. This definition is different from that of some states.

CAUSES OF FETAL DEATH

A classification of fetal deaths by underlying cause of death is contained in Table 1.33. This classification is based on the 9th Revision of the International Classification of Diseases which was introduced in 1979.

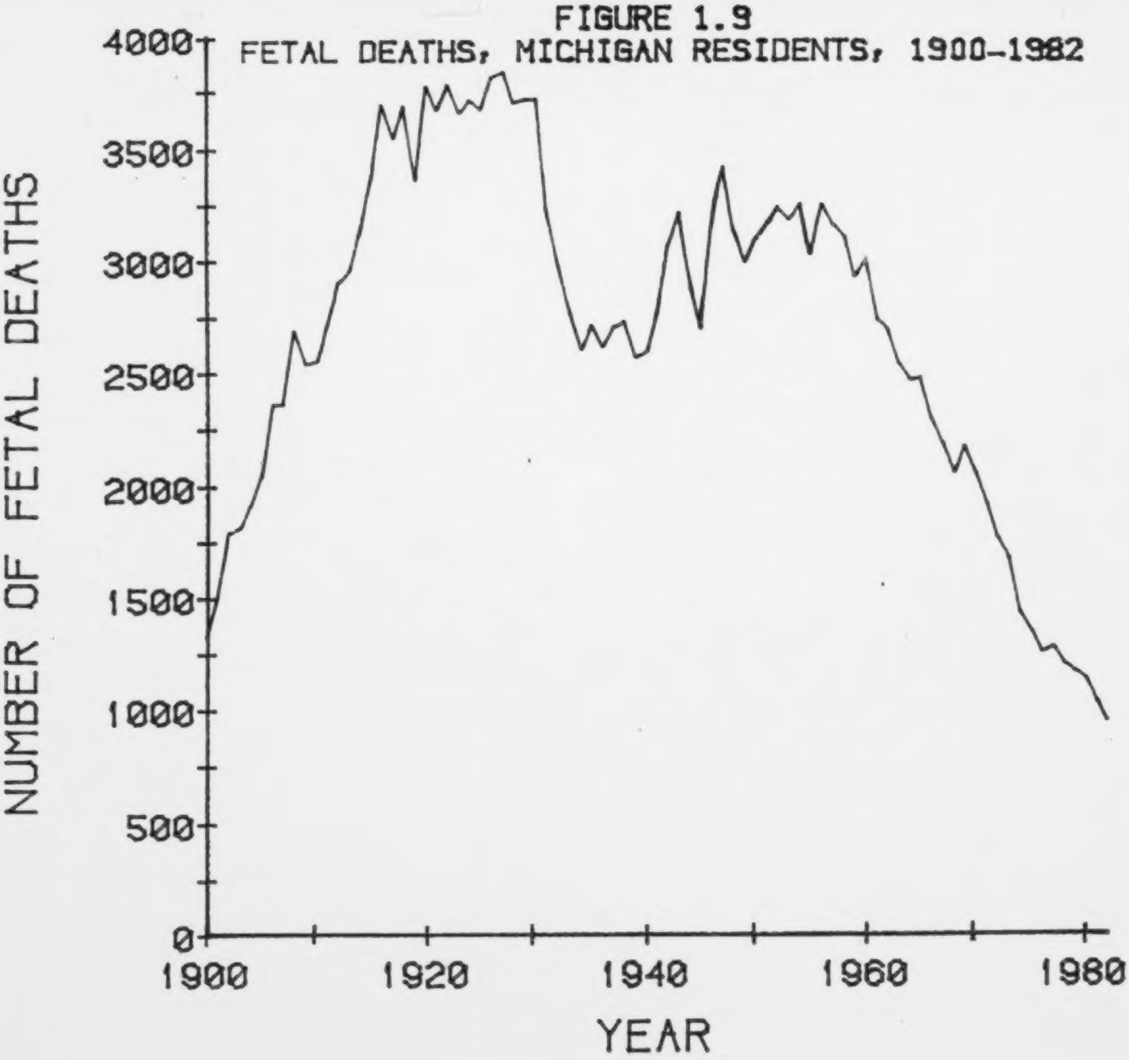
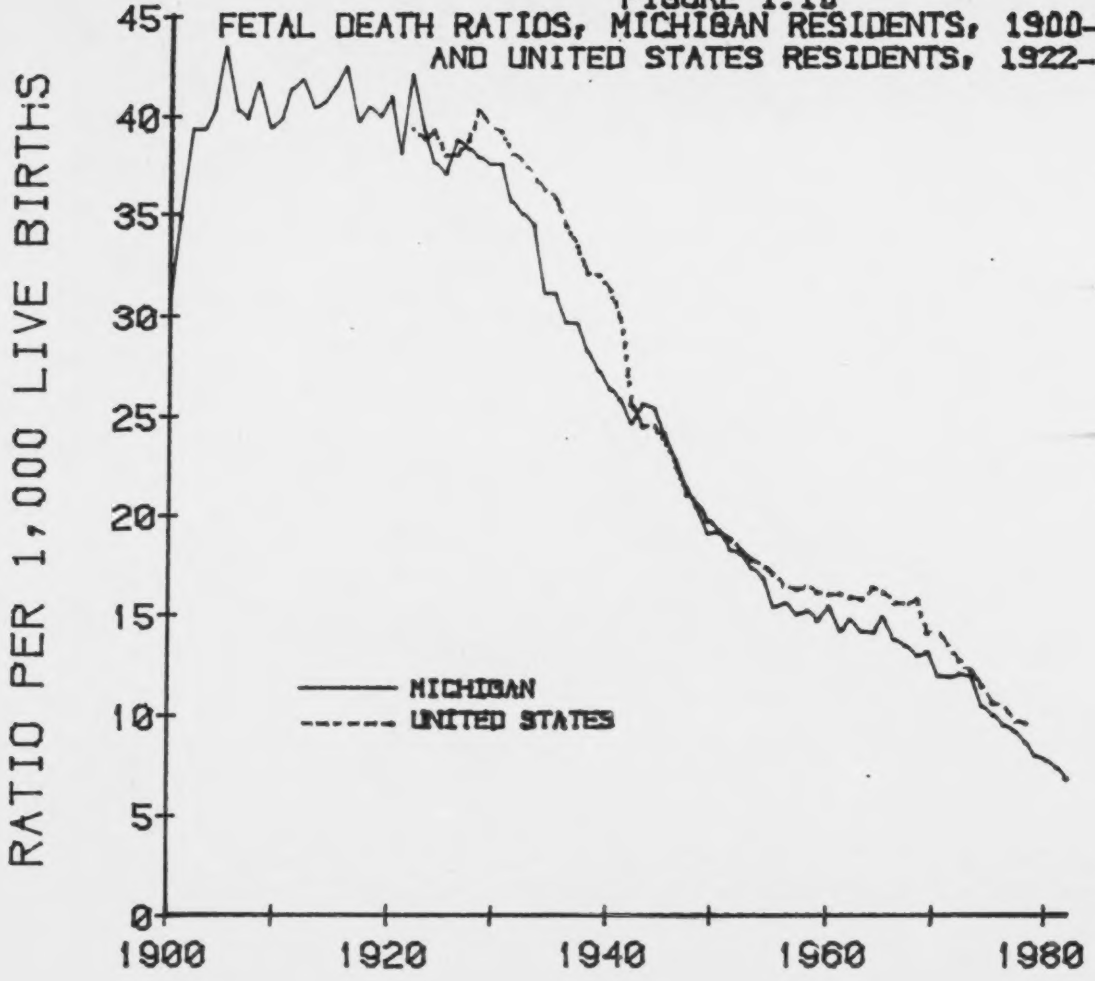


FIGURE 1.9
FETAL DEATHS, MICHIGAN RESIDENTS, 1900-1982

FIGURE 1.10
FETAL DEATH RATIOS, MICHIGAN RESIDENTS, 1900-1982, AND UNITED STATES RESIDENTS, 1922-1978[1]



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[1] U.S. ratios prior to 1933 are for registration areas only. U.S. ratios are based on three different definitions of fetal death:

1) prior to 1942 - all reported fetal deaths regardless of period of gestation
2) 1942-1968 - fetal deaths with gestational age 20 weeks or more or not stated
3) 1969-current - fetal deaths of stated or presumed period of gestation of 20 or more weeks

Table 1.32
Fetal Deaths and Fetal Death Ratios, Michigan and United States Residents, 1900-1982

UNITED STATES		YEAR	MICHIGAN	
FETAL DEATHS	FETAL DEATH RATIOS		FETAL DEATHS	FETAL DEATH RATIOS
---	---	1900	1,325	30.3
---	---	1910	2,559	39.9
70,010[1]	39.4	1920	3,770	40.9
86,466	39.2	1930	3,714	37.6
73,802	31.3	1940	2,602	26.3
68,261	19.2	1950	3,095	19.3
68,480	16.1	1960	3,008	15.4
52,961	14.2	1970	2,060	12.0
47,818	13.4	1971	1,923	11.9
41,380	12.7	1972	1,770	12.1
38,309	12.2	1973	1,682	11.9
36,281	11.5	1974	1,438	10.5
33,796	10.7	1975	1,356	10.1
33,111	10.5	1976	1,264	9.6
33,053	9.9	1977	1,284	9.3
32,301	9.7	1978	1,201[2]	8.7[2]
---	---	1979	1,175[2]	8.1[2]
---	---	1980	1,135[2]	7.8[2]
---	---	1981	1,040[2]	7.4[2]
---	---	1982	953	6.9

[1] Data for 1922.
[2] Revised.

Table 1.33
Fetal Deaths and Fetal Death Ratios by Underlying Cause of Death, Michigan Residents, 1982

ICD No.[1]	CAUSE OF DEATH	FREQUENCY	RATIO[2]
740	Anencephalus and similar anomalies	26	18.8
741	Spina bifida	2	1.4
742	Other congenital anomalies of nervous system	11	8.0
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	2	1.4
746	Other congenital anomalies of heart	2	1.4
747	Other congenital anomalies of circulatory system	1	0.7
750	Othar congenital anomalis of upper alimentary tract	1	0.7
751	Other congenital anomalies of digestive system	1	0.7
756	Other congenital musculoskeletal anomalies	2	1.4
758	Chromosomal anomalies	1	0.7
759	Other and unspecified congenital anomalies	25	18.1
740-759	All congenital anomalies combined	74	53.6
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	65	47.1
761	Fetus or newborn affected by maternal complications of pregnancy	98	71.0
762	Fetus or newborn affected by complications of placenta, cord, and membranes	385	279.1
763	Fetus or newborn affected by other complications of labor and delivery	3	2.2
764	Slow fetal growth and fetal malnutrition	4	2.9
765	Disorders relating to short gestation and unspecified low birthweight	33	23.9
766	Disorders relating to long gestation and high birthweight	3	2.2
767	Birth trauma	1	0.7
768	Intrauterine hypoxia and birth asphyxia	45	32.6
770	Other respiratory conditions of fetus and newborn	5	3.6
771	Infections specific to the perinatal period	3	2.2
772	Fetal and neonatal hemorrhage	2	1.4
773	Hemolytic disease of fetus or newborn, due to isoimmunization	3	2.2
775	Endocrine and metabolic disturbances specific to the fetus and newborn	15	10.9
778	Conditions involving the integument and temperature regulation of fetus and newborn	4	2.9
779	Other and ill-defined conditions originating in the perinatal period	210	152.2
740-779	All Causes	953	690.8

[1] Ninth Revision of the International Classification of Diseases, WHO.
[2] Ratios per 100,000 resident live births.

Since major changes were made between the 8th and 9th revisions of the ICD in the section used for classifying causes of fetal death, comparisons between cause-specific ratios for 1979 and later years and those for years prior to 1979 require detailed study. Also, since a relatively large number of deaths are allocated to unspecified causes, caution should be exercised in attempting to draw specific inferences regarding causes of death.

In 1982, 210 of the total 953 deaths were assigned to the category of "Other and ill-defined conditions originating in the perinatal period" Half (51.8 percent) of the remaining fetal deaths for which a cause was stated were attributed to complications of placenta, cord, and membranes (ICD 762). This is a group of maternal conditions which includes placenta previa, premature separation of the placenta, placental hemorrhage, and compression of the umbilical cord. Second in frequency was the category maternal complications of pregnancy (ICD 761), which was listed as the cause of 98 fetal deaths. This includes such complications as premature rupture of membranes, multiple pregnancy, and incompetent cervix. There were an additional 65 deaths caused by maternal conditions which may be unrelated to the pregnancy. Of the 74 fetal deaths caused by congenital anomalies, 26 were attributed to anencephalus or similar anomalies.

AGE OF MOTHER AND RACE OF FETUS

It appears that the younger, the older, and other than white mothers have a greater risk of delivering a stillborn fetus. The rates of fetal loss for mothers under 20 years of age, 40 years of age or greater, and for the other than white fetus are higher than those for other groups (Table 1.34).

The overall fetal death rate per 1,000 total births (live births plus fetal deaths) was 6.9 in 1982. An association of maternal age with fetal death rates is apparent from Table 1.34. The 25-29 year age group displayed the lowest rate. Progressively older and younger age groups displayed increasingly higher rates. The rate for women 15-19 (8.2) was 32.3 percent higher than the rate for women 25-29 years of age (6.2). The highest rate was experienced by women over 40, for whom the rate (17.3) was 2.8 times the rate for women in the lowest risk age group. The median age of women whose pregnancy resulted in a fetal death was 25 years, the same as for women having live births.

In 1982 the fetal death rate for white fetuses was 6.4 while the fetal death rate for other races was 42.2 percent higher at 9.1. Rates for other than white fetuses were

Table 1.34
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Age of Mother and Race of Fetus, Michigan Residents, 1982

AGE OF MOTHER AND RACE OF FETUS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Under 15 Years . .	-	319	319	*
White	-	107	107	*
Other Than White	-	211	211	*
Not Stated . . .	-	1	1	000
15-19 Years . . .	143	17,344	17,487	8.2
White	83	12,129	12,212	6.8
Other Than White	60	5,206	5,266	11.4
Not Stated . . .	-	9	9	000
20-24 Years . . .	290	45,586	45,876	6.3
White	236	37,609	37,845	6.2
Other Than White	53	7,950	8,003	6.6
Not Stated . . .	1	27	28	000
25-29 Years . . .	287	45,995	46,282	6.2
White	228	39,762	39,990	5.7
Other Than White	58	6,206	6,264	9.3
Not Stated . . .	1	27	28	000
30-39 Years . . .	213	27,959	28,172	7.6
White	167	23,666	23,833	7.0
Other Than White	46	4,274	4,320	10.6
Not Stated . . .	-	19	19	000
40 or Over	13	740	753	17.3
White	12	589	601	20.0
Other Than White	1	151	152	*
Not Stated . . .	-	-	-	000
Not Stated	7	7	14	000
White	3	6	9	000
Other Than White	2	1	3	000
Not Stated . . .	2	-	2	000
Total	953	137,950	138,903	6.9
White	729	113,868	114,597	6.4
Other Than White	220	23,999	24,219	9.1
Not Stated . . .	4	83	87	000

higher than for white fetuses in all age intervals with sufficient events to calculate rates. The differentials ranged from 6.4 percent for women aged 20 through 24 to 67.6 percent for women aged 15-19.

INTERPREGNANCY TIME PERIOD FOR FETAL DEATHS

For those women whose pregnancy terminated with a fetal death in 1982, a total of 465 reported the date of the termination of a previous pregnancy. Table 1.35 presents a comparison of fetal death rates by interpregnancy time span for births in 1982 to women who reported the date of a prior termination. The minimum risk was associated with spacings of between 3 and 5 years (4.2 fetal deaths per 1,000 total births). The risk increased progressively as the length of spacings decreased or increased. The fetal death rate for births with spacings of five or more years was 78.6 percent above the rate of the minimum risk category. The greatest risk of fetal death was associated with spacings of less than one year. For births in this category the fetal death rate (19.1) was 4.5 times the rate for the minimum risk category. When comparing interpregnancy time spans for live births and fetal deaths one should be aware that the shorter gestational period associated with fetal deaths results in a correspondingly shorter interpregnancy time span.

The median interpregnancy time period for fetal deaths was 2 years and 5 months, compared to 2 years and 6 months for women having live births in 1982.

Table 1.36 indicates that, as with live births (Table 1.13), the outcome of the immediate prior termination has a strong influence on the interval between pregnancies. For 139 women whose prior termination was a fetal death, the median interpregnancy time span was 1 year and 7 months. For 326 women whose prior termination was a live birth, the median interpregnancy time span was 2 years and 9 months.

As for live births, the median interpregnancy time span for fetal deaths has declined since 1977. In 1977 the median was 2 years and 11 months for fetal deaths. By 1982 the median had declined 17.1 percent, to 2 years and 5 months. For live births the decline was 9.1 percent, from 2 years and 9 months in 1977 to 2 years and 6 months in 1982.

PRENATAL CARE - FETAL DEATHS

Of the 953 fetal deaths reported for 1982, 34 or 3.6 percent of the reports indicated that the mother had no prenatal visits. The comparable percent for live births was 0.8. The percent of mothers with fewer than ten prenatal visits was 58.8 for fetal deaths and 24.9 for live births

TABLE 1.35
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Interpregnancy Time Span, Michigan Residents Reporting Prior Pregnancy Terminations[1], 1982

Time Span in Years	Fetal Deaths	Live Births	Total Births	Rate per 1,000 Total Births
Total	465	84,569	85,034	5.5
Less Than One	58	2,980	3,038	19.1
1 < 2	131	27,331	27,462	4.8
2 < 3	92	21,536	21,628	4.3
3 < 5	81	19,058	19,139	4.2
5 or More	103	13,664	13,767	7.5

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

Table 1.36
Fetal Deaths[1] to Women Reporting Prior Pregnancy Terminations[2] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[3], Michigan Residents, 1982

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH[3]		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	465	100.0	139	100.0	326	100.0
Less Than One .	58	12.5	42	30.2	16	4.9
1 < 2	131	28.2	45	32.4	86	26.4
2 < 3	92	19.8	15	10.8	77	23.6
3 < 5	81	17.4	16	11.5	65	19.9
5 or More . . .	103	22.2	21	15.1	82	25.2
Median Time Span	2 yrs. 5 mos.	000	1 yr. 7 mos.	000	2 yrs. 9 mos.	000

[1] Deaths of fetuses of twenty or more weeks gestation or weighing 400 grams or more.

[2] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[3] Fetal death as defined for the pregnancy history on the fetal death record is a fetal death of any gestational age.

(Table 1.17 and Table 1.37).

The number of prenatal visits varied by race (Table 1.37). Mothers of white fetuses had a mean of 8.1 visits whereas those of other than white fetuses reported a mean of 6.1 visits. Note, however, that the number of prenatal visits was not stated on 9.3 percent of the reports for white fetuses and 17.7 percent of the reports for other than white fetuses.

The fetal death rate varied with the number of prenatal visits (Table 1.38). The rate was 29.3 for mothers with no care, 38.0 for mothers with 1-4 visits, and 12.1 for those with 5-9 visits. The fetal death rate was lowest for mothers with 10-14 visits (2.7), and increased to 2.9 and 5.3 for mothers with 15-19 and 20 or more visits, respectively.

Fetal death rates for white and other than white fetuses exhibited similar patterns of association with the number of prenatal visits (Table 1.38). The overall fetal death rate for other than white fetuses was 42.2 percent higher than for white fetuses. However, the differential by race was not uniform between prenatal care categories. The fetal death rates for white fetuses were higher than those for other than white fetuses for births to women who received no care or from 1-14 prenatal visits. For fetuses born to women who received between 5 and 19 prenatal visits, rates for other than white fetuses were above those for white fetuses.

Caution should be exercised in interpreting the above fetal death rates and proportions. Incomplete reporting of the number of visits occurred on 11.4 percent of the fetal death reports compared with 2.3 percent of the live birth records. It should also be kept in mind that fetal deaths are much more likely to occur preterm and this affects the possible number of prenatal visits (Table 1.39). In 1982 27.4 percent of the reported fetal deaths occurred before 28 weeks of gestational age, and 51.9 percent occurred before 36 weeks. Incomplete reporting of gestational age occurred on an additional 9.0 percent of the fetal death reports.

The month of pregnancy that prenatal care began was most frequently the second month (Table 1.40). Two thirds (68.2 percent) of all fetal deaths were to women who reported receiving care prior to the fourth month of pregnancy, and 86.0 percent were to women receiving care prior to the sixth month. From 1970 through 1973 there were increases in the percentage of fetal deaths in which the mother received care prior to the fourth and sixth month. These percentages declined between 1973 and 1976, and increased between 1976 and 1982 (Figure 1.11).

Table 1.37
Fetal Deaths and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Fetus, Michigan Residents, 1982

NUMBER OF PRENATAL VISITS	RACE OF FETUS							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	34	3.6	16	2.2	18	8.2	-	-
1-4	173	18.2	117	16.0	56	25.5	-	-
5-9	353	37.0	283	38.8	69	31.4	1	25.0
10-14	231	24.2	206	28.3	24	10.9	1	25.0
15-19	38	4.0	29	4.0	9	4.1	-	-
20 or Over	15	1.6	10	1.4	5	2.3	-	-
Not Stated	109	11.4	68	9.3	39	17.7	2	50.0
Total	953	100.0	729	100.0	220	100.0	4	100.0
Median Number of Visits	7	000	8	000	5	000	*	000
Mean Number of Visits .	7.7	000	8.1	000	6.1	000	*	000

Table 1.38
Fetal Deaths, Total Births and Fetal Death Rates by Number of Prenatal Visits and Race[1] Michigan Residents, 1982

NUMBER OF VISITS	ALL BIRTHS			WHITE BIRTHS			ALL OTHER BIRTHS		
	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES
Total	953	138,903	6.9	729	114,597	6.4	220	24,219	9.1
None	34	1,161	29.3	16	534	30.0	18	627	28.7
1-4	173	4,556	38.0	117	2,702	43.3	56	1,853	30.2
5-9	353	29,228	12.1	283	22,262	12.7	69	6,957	9.9
10-14	231	84,654	2.7	206	73,742	2.8	24	10,889	2.2
15-19	38	13,211	2.9	29	10,903	2.7	9	2,303	3.9
20 or Over	15	2,857	5.3	10	2,089	4.8	5	767	6.5
Not Stated	109	3,236	33.7	68	2,365	28.8	39	823	47.4

[1] Race not stated included in total columns only.

Table 1.39
Fetal Deaths by Gestational Age and Number of Prenatal Visits, Michigan Residents, 1982

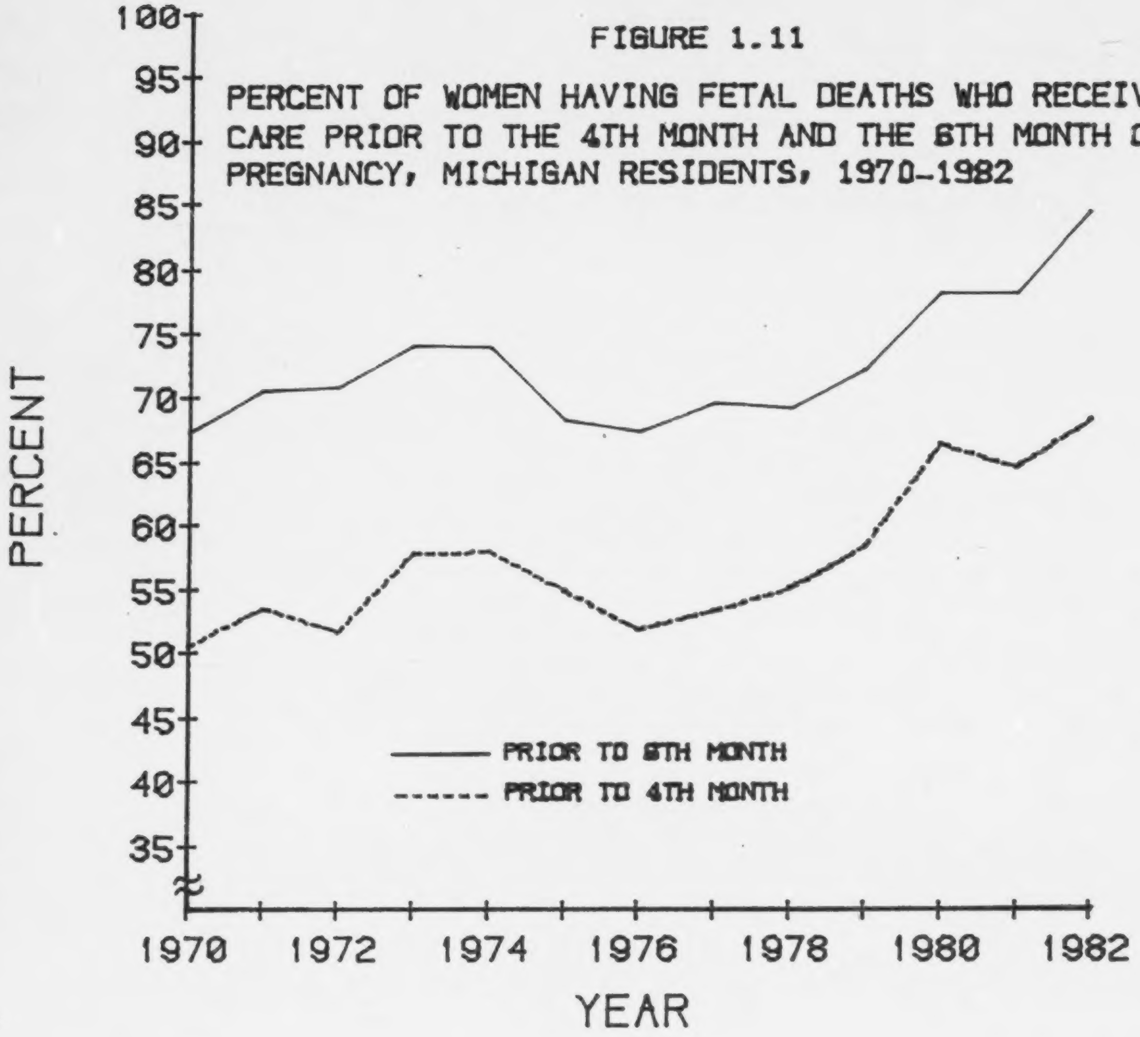
GESTATIONAL AGE IN COMPLETED WEEKS	NUMBER	PERCENT	MEDIAN NUMBER OF VISITS
Under 20	20	2.1	3
20-23	120	12.6	4
24-27	121	12.7	5
28-31	121	12.7	6
32-35	113	11.9	8
36-39	202	21.2	9
40-43	149	15.6	12
44 or More	21	2.2	11
Unknown	86	9.0	2
Total	953	100.0	7

Table 1.40
Fetal Deaths by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1982

MONTH CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN
TOTAL	953	34	173	353	231	38	15	109
First	117	-	10	48	28	15	6	10
Second	322	-	42	135	110	18	6	11
Third	211	-	45	95	62	2	2	5
Fourth	92	-	25	37	18	3	1	8
Fifth	61	-	27	19	7	-	-	8
Sixth	17	-	10	5	1	-	-	1
Seventh	12	-	4	5	3	-	-	-
Eighth	7	-	4	3	-	-	-	-
Ninth	4	-	1	2	1	-	-	-
No Care	34	34	-	-	-	-	-	-
Unknown	76	-	5	4	1	-	-	66

FIGURE 1.11

PERCENT OF WOMEN HAVING FETAL DEATHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND THE 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1982



FETAL WEIGHT

Among live births, the percent of infants weighing 2,500 grams or less at birth was 6.9. The comparable percent among fetal deaths was 68.5. The distribution of fetal weight by plurality for fetal deaths is presented in Table 1.41. Note that twin and triplet deliveries are not sets, but are total occurrences and that any given set may have included live births. The percent of single delivery fetal deaths under 2,501 grams was 67.2. The comparable percent for twin deliveries was 85.2.

The fetal weight distribution is strongly associated with gestational age (Table 1.42). The median fetal weight for all fetal deaths was 1,417 grams compared to a median birthweight of 3,402 grams for live births. For deaths of fetuses of 32-35 weeks age, the median was 1,503 grams, while for the normal gestational age range of 36-39 weeks the median weight was only 2,523 grams.

Table 1.41
Fetal Deaths by Fetal Weight and Plurality, Michigan Residents, 1982

WEIGHT	FETAL DEATHS	CUM. PERCENT	SINGLE DELIVERY	TWIN DELIVERY	TRIPLET DELIVERY
500 Grams or Less . .	166	17.4	150	13	3
501-1,000 Grams . . .	217	40.2	194	21	2
1,001-1,500 Grams . .	111	51.8	100	9	2
1,501-2,000 Grams . .	90	61.3	84	6	-
2,001-2,500 Grams . .	69	68.5	66	3	-
2,501-3,000 Grams . .	88	77.8	87	-	1
3,001-3,500 Grams . .	90	87.2	87	3	-
3,501-4,000 Grams . .	68	94.3	67	1	-
4,001-4,500 Grams . .	23	96.7	23	-	-
4,501 Grams or More .	19	98.7	17	2	-
Not Stated	12	100.0	9	3	-
Total	953	100.0	884	61	8

Table 1.42
Fetal Deaths by Fetal Weight and Gestational Age, Michigan Residents, 1982

FETAL WEIGHT IN GRAMS	GESTATIONAL AGE IN COMPLETED WEEKS									
	TOTAL	UNDER 20	20-23	24-27	28-31	32-35	36-39	40-43	44 OR MORE	UNKNOWN
Less than 1501	494	19	117	113	102	54	34	4	-	51
1501-2500	159	1	-	3	13	41	63	16	5	17
2501 or over	288	-	1	4	3	17	101	128	16	18
Unknown	12	-	2	1	3	1	4	1	-	-
Total	953	20	120	121	121	113	202	149	21	86
Median[1]	1,417	326	457	620	935	1,503	2,523	3,260	3,231	1,077

[1] Excluding unknown fetal weight.

MORTALITY

SECTION II

MORTALITY: AN OVERVIEW 1982

RESIDENT DEATHS	75,536
CRUDE DEATH RATE	8.2
INFANT DEATHS	1,672
INFANT DEATH RATE	12.1
NEONATAL DEATHS	1,202
NEONATAL DEATH RATE	8.7
PERINATAL DEATHS	1,988
PERINATAL DEATH RATE	14.3
MATERNAL DEATHS	11
MATERNAL DEATH RATE	0.8
DEATHS FROM HEART DISEASE PER DAY	82
DEATHS FROM CANCER PER DAY	45
DEATHS FROM STROKE PER DAY	16
DEATHS FROM ACCIDENTS PER DAY	9
MEDIAN AGE AT DEATH	72 years
MEDIAN AGE AT DEATH FOR MALES	69 years
MEDIAN AGE AT DEATH FOR FEMALES	76 years

MORTALITY: AN OVERVIEW 1981

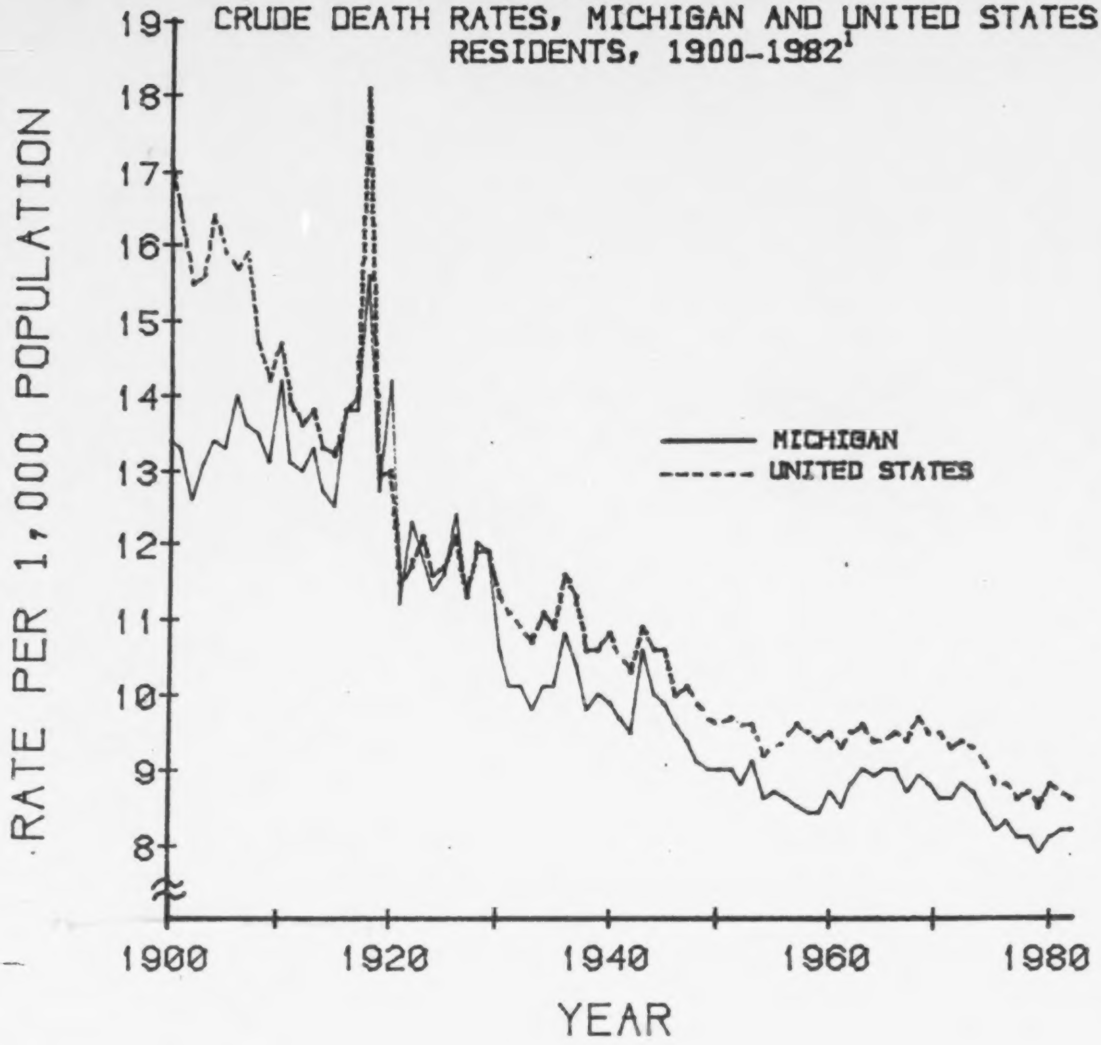
In 1982 there were 75,536 deaths recorded for Michigan residents, 282 fewer than in the previous year. The crude death rate per 1,000 population was 8.2 in 1982 the same as in 1981. The age-adjusted death rate decreased by 1.3 percent from 1981 to 1982.This latter rate, the age-adjusted rate serves as a better measure of mortality than a crude death rate as age-adjusted death rates control for differences or variations in the age composition of the population.

Between 1900 and 1982 the number of deaths occurring to Michigan residents increased from 32,453 to 75,536. The 31,472 deaths recorded in 1902 was the lowest number of resident deaths in this century, while the greatest number was recorded in 1972 when total resident deaths numbered 79,210. Although the total number of deaths increased between 1900 and 1982, the increase is due to an increasing population. The crude death rate decreased from 13.4 (per 1,000 population) in 1900 to 8.2 in 1982. The 1979 death rate of 7.9 was the lowest crude death rate ever recorded for Michigan. The highest death rate (15.6) was observed in 1918 (Figure 2.1).

A comparison of deaths and crude death rates for Michigan and the United States for the period 1970-1982 is presented in Table 2.1. As Michigan's population is somewhat "younger" than that of the nation, the Michigan rate has consistently been below the United States rate. Both Michigan and national rates were relatively stable between 1970 and 1973, declined in 1974 and 1975, and have remained quite stable since 1975. Between 1970 and 1982 the number of Michigan resident deaths declined by 1.0 percent, while the crude death rate declined by 4.7 percent. The decline in the age-adjusted death rate was much steeper, dropping by 19.7 percent (Table 2.6). Over the period 1970-1982 the age-adjusted death rate for the nation declined by a similar amount, 22.1 percent. Over the period 1970 through 1982 the age-adjusted rate for Michigan has been persistently higher than national rates though to a relatively small degree, based upon the revised data in Table 2.6. In 1982 the age-adjusted rate for Michigan was 3.5 percent above the provisional national rate.

The numbers of deaths by marital status and age for men and women are displayed in Table 2.2. The majority of men were married at the time of death while the majority of women were widows. Men were twice as likely as women to be married at the time of death (60.0 percent compared to 29.2 percent). Conversely, women were over three times as likely to be widows at the time of death as men were to be widowers (55.0 percent compared to 17.4 percent). Among males, 14.2 percent had never been married, while the corresponding

FIGURE 2.1
CRUDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS, 1900-1982[1]



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[1] United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration

Table 2.1
Number of Deaths and Crude Death Rates, Michigan and United States[1] Residents, 1970-1982

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,921,031	9.5	1970	76,321	8.6
1,927,542	9.3	1971	77,395	8.6
1,963,944	9.4	1972	79,210	8.8
1,973,003	9.3	1973	78,522	8.7
1,934,388	9.1	1974	76,143	8.4
1,892,879	8.8	1975	74,522	8.2
1,909,440	8.8	1976	75,801	8.3
1,899,597	8.6	1977	74,144	8.1
1,927,788	8.7	1978	74,773	8.1
1,913,841	8.5	1979	73,480	7.9
1,989,841	8.8	1980	74,991	8.1
1,987,000Pr.	8.7Pr.	1981	75,818	8.2
1,986,000Pr.	8.6Pr.	1982	75,536	8.2

[1] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

Table 2.2
Deaths by Age, Sex, and Marital Status, Michigan Residents, 1982

AGE IN YEARS	MALES						FEMALES					
	TOTAL	NEVER MARRIED	DIVORCED	WIDOWER	MARRIED[1]	UNKNOWN	TOTAL	NEVER MARRIED	DIVORCED	WIDOW	MARRIED[1]	UNKNOWN
Under 15	1,374	1,374	-	-	-	-	954	954	-	-	-	-
15-24	1,071	922	18	2	128	1	417	351	14	2	49	1
25-34	1,408	628	215	3	560	2	616	190	120	19	285	2
35-44	1,472	245	312	24	885	6	833	84	173	34	540	2
45-54	3,151	352	594	101	2,092	12	1,840	122	310	193	1,213	2
55-64	7,085	619	798	435	5,212	21	4,360	220	443	1,111	2,576	10
65-74	10,415	719	816	1,360	7,491	29	7,225	354	483	3,373	3,009	6
75-84	9,711	646	436	2,566	6,034	29	9,707	523	382	6,807	1,981	14
85+	5,082	284	124	2,589	2,067	18	8,806	505	208	7,583	500	10
Unknown	1	-	-	-	-	1	1	-	-	-	-	1
All Ages	40,770	5,789	3,313	7,080	24,469	119	34,759	3,303	2,133	19,122	10,153	48

[1] Includes legally separated.

figure for females was 9.5 percent. Men were also more likely to be divorced (8.1 percent compared to 6.1 percent).

Table 2.3 presents data on the number of deaths by race for the period 1970-1982. The number of deaths of white persons declined by 3.0 percent over these years while deaths of black persons increased by 13.9 percent. Reported deaths of American Indians and persons of other races remained fairly constant. It should be noted that data on race are derived from the death certificates filed by funeral directors. Data from sources where race is self-enumerated, when matched with death data, indicate larger numbers of American Indians and persons of other races than reported as members of those groups on the death certificate.[1] In 1982 deaths of white persons numbered 65,259 and accounted for 86.4 percent of all deaths, while deaths of black persons constituted 13.2 percent of the state total.

Michigan resident deaths in 1982 are tabulated by age, race, and sex in Table 2.4. Of the 75,536 Michigan resident deaths that occurred in 1982, 40,770 (54.0 percent) occurred to males and 34,759 occurred to females (7 records had sex not stated). The median age at death for males was 69 years, compared to a significantly higher figure of 76 years for females. The median age at death was 73 years for whites, compared to 63 years for persons of other races.

In 1982, 24,586 or 32.5 percent of all deaths occurred to persons under the age of 65. The proportion dying under age 65 was greater for males than females and greater for other than white persons than for white persons. For deaths of white persons 34.9 percent of males and 23.1 percent of females died before age 65. For deaths of other than white persons 57.6 percent of males and 45.0 percent of females died before age 65.

Unadjusted, age-specific, and age-adjusted death rates by race and sex are presented in Table 2.5. The unadjusted rate for males of 907.2 was 23.5 percent above that for females while the age-adjusted rate for males was 76.4 percent higher. The population subgroup with the lowest unadjusted death rate was other than white females (582.8) and the highest unadjusted rate was experienced by white males (920.7). Age-adjusting the data results in a quite different relationship, however, with the age-adjusted rate being lowest for white females and highest for other than white males.

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[1] National Center for Health Statistics, Comparability of Marital Status, Race, Nationality and Country of Origin in the Death Certificate and Matching Census Record: United States, May - August, 1960 (Washington, D.C., 1969).

Table 2.3
Number of Deaths by Race[1], Michigan Residents, 1970-1982

YEAR	ALL RACES	WHITE	BLACK	AMERICAN INDIAN	OTHER[2]
1970	76,321	67,270	8,731	127	54
1971	77,395	67,847	9,259	128	45
1972	79,210	69,598	9,409	126	40
1973	78,522	68,502	9,641	121	54
1974	76,143	66,600	9,233	128	58
1975	74,522	65,191	9,024	118	60
1976	75,801	66,334	9,146	125	70
1977	74,144	64,816	9,038	140	53
1978	74,773	65,149	9,254	152	72
1979	73,480	63,955	9,188	129	75
1980	74,991	64,897	9,704	137	93
1981	75,818	65,559	9,950	127	78
1982	75,536	65,259	9,941	148	101

[1] Deaths with race not stated included in total column only. Persons of Spanish or of Mexican-American descent are included with white.

[2] Includes Chinese, Japanese, Filipino, Hawaiian, other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977 and with "Other" since 1978.

Table 2.4
Number of Deaths by Age, Race, and Sex[1], Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	1672	978	690	1110	651	456	561	327	233	1	-	1
1-4	278	153	125	200	111	89	78	42	36	-	-	-
5-9	162	106	56	126	81	45	36	25	11	-	-	-
10-14	220	137	83	168	105	63	51	32	19	1	-	1
15-19	615	435	180	499	355	144	115	79	36	1	1	-
20-24	873	636	237	668	487	181	200	144	56	5	5	-
25-29	988	698	290	668	475	193	317	223	94	3	-	3
30-34	1036	710	326	645	428	217	387	281	106	4	1	3
35-39	1019	675	344	702	456	246	314	216	98	3	3	-
40-44	1286	797	489	958	587	371	327	209	118	1	1	-
45-49	1798	1114	684	1395	861	534	400	252	148	3	1	2
50-54	3194	2037	1156	2556	1635	920	632	398	234	6	4	2
55-59	4840	3010	1830	3979	2484	1495	853	520	333	8	6	2
60-64	6605	4075	2530	5551	3493	2058	1040	573	467	14	9	5
65-69	8388	5079	3309	7262	4440	2822	1117	633	484	9	6	3
70-74	9252	5336	3916	8109	4737	3372	1132	591	541	11	8	3
75-79	10052	5388	4664	9114	4898	4216	931	485	446	7	5	2
80-84	9367	4323	5043	8557	3915	4641	807	406	401	3	2	1
85-89	7962	3194	4768	7454	2991	4463	505	201	304	3	2	1
90+	5926	1888	4038	5536	1755	3781	387	132	255	3	1	2
Not Stated	3	1	1	2	1	-	-	-	-	1	-	1
All Ages	75536	40770	34759	65259	34946	30307	10190	5769	4420	87	55	32
Median Age at Last Birthday	72	69	76	73	70	77	63	61	67	62	63	60

[1] The deaths of 6 white and 1 other than white persons with sex not stated are included only in the total columns.

Table 2.5
Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	818.6	907.2	734.5	840.3	920.7	763.4	702.4	833.3	582.8
Under 1 Year	1190.8	1370.8	1003.7	990.1	1136.8	836.2	1989.8	2322.3	1655.9
1-14 Years	34.2	40.1	28.1	32.4	37.9	26.6	40.9	48.5	33.3
15-24 Years	81.6	117.0	45.9	76.8	109.9	43.0	106.7	155.4	60.6
25-34 Years	126.8	178.8	76.2	98.8	135.5	62.2	270.4	418.5	142.9
35-44 Years	225.7	293.6	160.2	189.7	241.3	139.2	444.2	629.2	281.4
45-54 Years	554.3	720.7	397.3	507.3	654.1	366.3	860.6	1185.8	586.8
55-64 Years	1299.8	1708.2	936.1	1227.5	1632.4	866.0	1846.3	2286.8	1461.0
65-74 Years	3094.7	4185.9	2249.4	3034.2	4154.1	2168.0	3582.5	4440.7	2909.9
75-84 Years	6928.7	9320.6	5513.4	6972.5	9453.5	5528.1	6512.7	8181.8	5364.3
85 Years and Over	15984.3	19334.5	14530.8	16187.2	19677.8	14686.6	13513.1	15474.0	12564.6
Age-Adjusted Rate[2]	576.1	760.2	431.0	549.2	728.3	409.9	737.8	952.7	561.0

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

The age-specific death rates for all males and all females displayed in Figure 2.2 indicate a similar pattern. The rates for both sexes declined from birth to a low for ages 1-14 years. The rate for 15-24 year olds was much higher than for 1-14 year olds in both sexes (2.9 and 1.6 times as high, respectively, for males and females). The rates for both sexes rose through the terminal age group (85 years and over). The rates for males were consistently above those for females with the greatest relative differential occurring in the age group 15-24 years, where the rate for males was 2.5 times that for females.

A comparison by race of 1982 age-specific death rates for males is graphically presented in Figure 2.3. Rates for males of both races increased dramatically from the age group 1-14 years to the age group 15-24 years. Between ages 15-24 and 25-34 the rate for white males increased by 23.2 percent, while the corresponding increase for other than white males was 169.3 percent. Rates for other than white males were above those for white males at all ages prior to 75 years. The largest relative differential was for persons from 25 through 34 years of age, where the rate for other than white males was 3.1 times that of white males. Beyond age 74 the rates for white males were higher. The overall death rate of 833.3 per 100,000 for other than white males was 10.5 percent below the rate for white males (920.7). This is a reflection of the younger age distribution of the other than white male population. The age-adjusted death rate for other than white males was 30.8 percent higher than that for white males.

Rates for other than white females were higher than those for white females at all ages prior to 75 years (Figure 2.4). For infants under the age of one year and for women from 25 through 44 years, the rate for other than white females was two or more times the rate for white females. The death rate for all ages was 763.4 for white females and 582.8 for other than white females, reflecting the greater concentration of the white female population in the older age intervals with relatively high death rates. After adjusting for differences in the age distributions of the populations, the rate for other than white females was 36.9 percent greater than that for their white counterparts.

Age-adjusted death rates for other than white persons were considerably higher than comparable rates for white persons throughout the period 1970-1982 (Table 2.6). Age-adjusted rates for other than white males ranged between 28 percent (in 1978) and 39 percent (in 1973) higher than comparable rates for white males in Michigan. For females this differential is even greater with the rate for other than white women exceeding that for white women by 31 to 48 percent. In 1982 this differential for males was 30.8 percent and for females 36.9 percent.

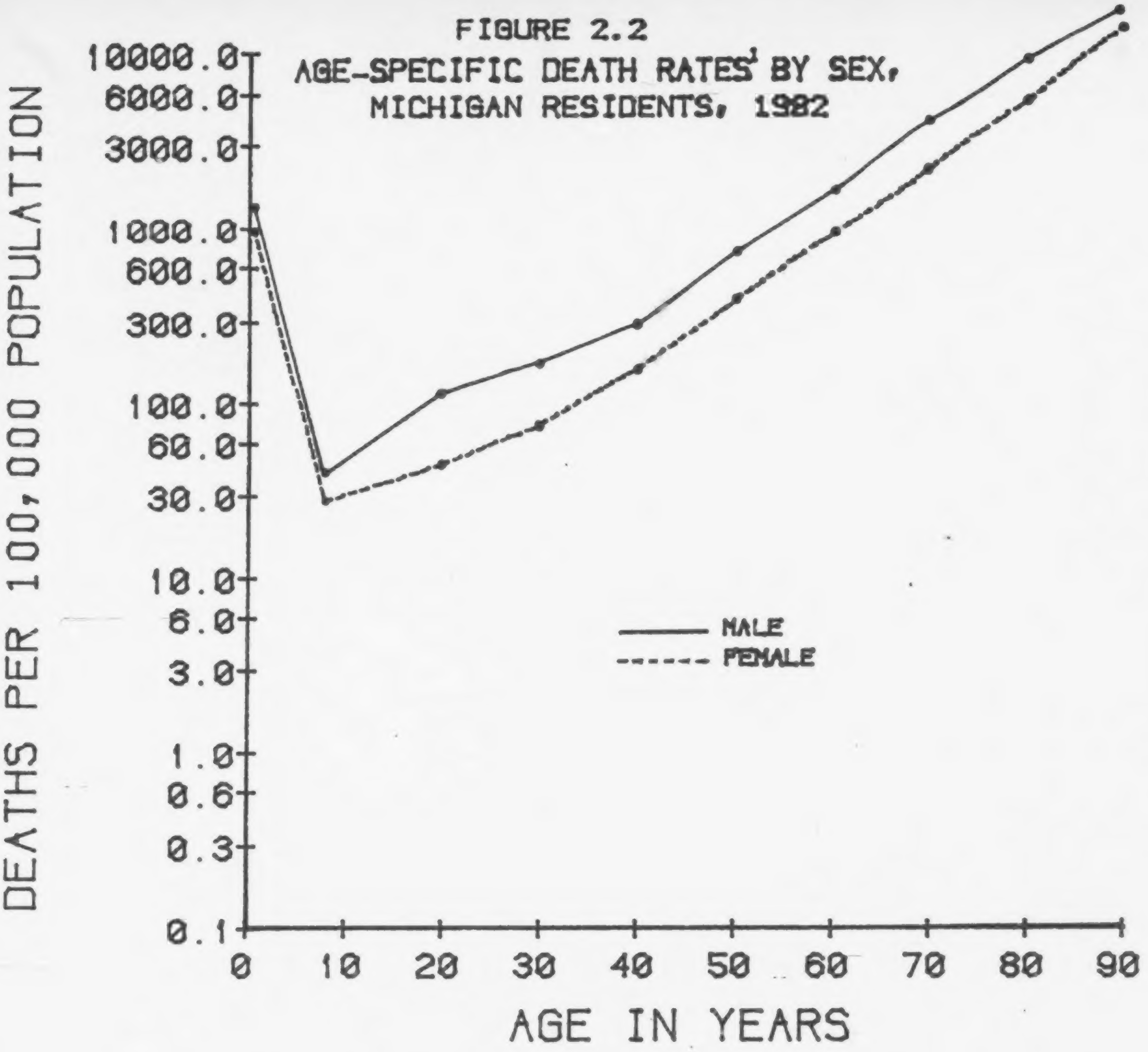

FIGURE 2.2
AGE-SPECIFIC DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1982

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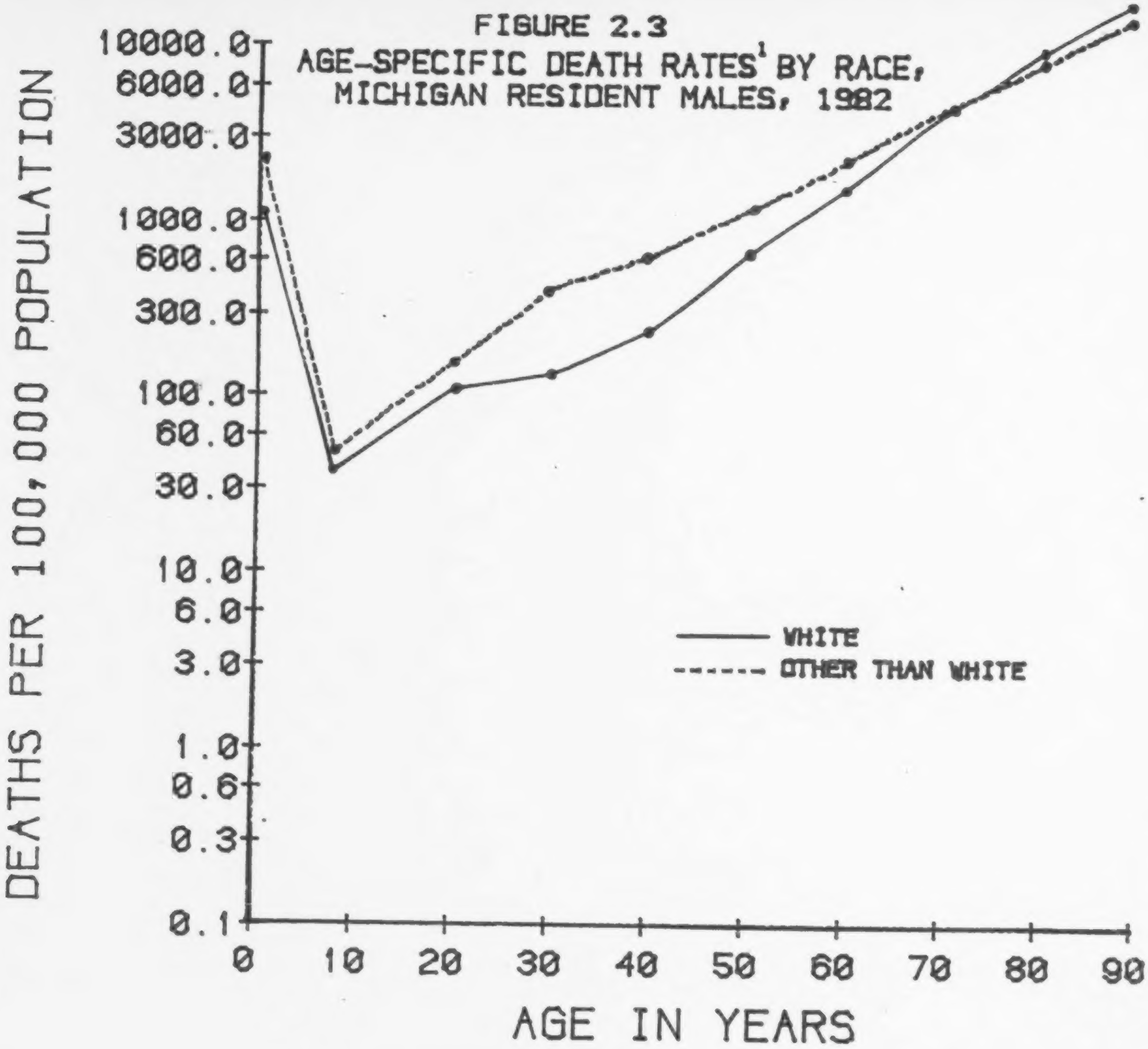
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.3
AGE-SPECIFIC DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1982



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

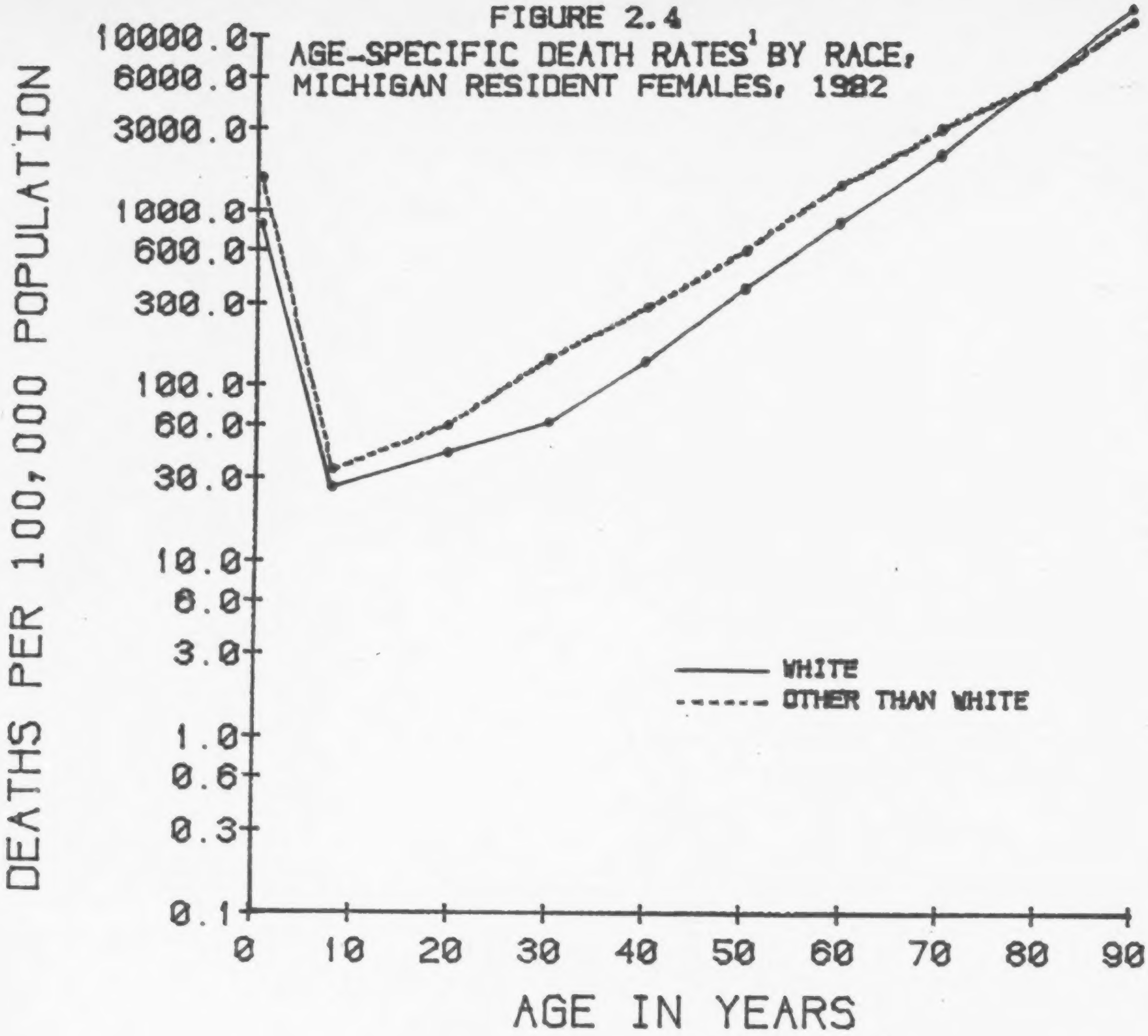


FIGURE 2.4
AGE-SPECIFIC DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1982

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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

Table 2.6
Age-Adjusted Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	717.5	925.9	537.3	685.5	889.4	510.8	961.5	1201.7	744.8
	1971	707.9	922.9	524.0	673.0	881.9	496.0	962.4	1216.4	734.5
	1972	711.1	928.2	526.4	678.1	889.3	500.0	942.5	1203.3	711.0
	1973	694.3	906.3	513.7	659.7	864.5	486.9	932.3	1198.7	697.8
	1974	660.7	865.1	488.0	630.0	826.9	465.3	864.5	1123.4	637.7
	1975	640.2	840.3	472.4	612.0	803.2	453.4	822.5	1087.4	592.3
	1976	636.1	838.5	469.1	609.4	804.5	450.0	808.8	1062.8	590.5
	1977	614.3	814.8	449.4	589.8	785.1	430.5	774.0	1008.6	574.0
	1978	606.3	797.8	449.8	581.5	769.7	428.7	767.8	981.7	587.2
	1979	585.4	775.5	431.5	561.0	746.8	411.9	739.9	960.2	554.8
	1980	588.0	773.9	438.7	560.3	740.1	417.1	761.0	993.1	569.4
	1981	583.4	763.8	438.5	556.6	731.8	417.0	748.3	965.9	568.4
	1982	576.1	760.2	431.0	549.2	728.3	409.9	737.8	952.7	561.0
U.S.	1970	714.3	931.6	532.5	679.6	893.4	501.7	983.4	1231.4	770.8
	1971	697.6	913.3	519.1	663.7	876.0	489.1	959.5	1206.7	749.8
	1972	698.0	918.0	516.6	664.0	879.3	487.6	958.6	1223.1	737.1
	1973	687.3	905.9	508.1	654.0	868.5	479.3	942.2	1199.5	728.1
	1974	659.5	870.9	487.0	629.0	836.1	461.0	889.6	1142.4	680.5
	1975	630.4	837.2	462.5	602.2	804.3	439.0	840.6	1090.1	634.5
	1976	618.5	820.9	455.0	591.3	789.3	432.5	818.5	1063.4	618.3
	1977	602.1	801.3	441.8	575.7	770.6	419.6	796.7	1036.1	601.8
	1978	595.0	791.4	437.4	569.5	761.1	416.4	780.0	1021.0	585.8
	1979	577.0	768.6	423.1	551.9	738.4	402.5	757.1	994.8	566.9
	1980	585.8	777.2	432.6	559.4	745.3	411.1	774.2	1015.1	582.6
	1981	571.6[3]	---	---	---	---	---	---	---	---
	1982	556.4[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Provisional.

Declines have occurred since 1970 both in Michigan and the United States in age-adjusted death rates in each race-sex subgroup. Michigan's age-adjusted rate for the population as a whole declined by 19.7 percent between 1970 and 1982 while the estimated decline between 1970 and 1980 for the United States was 22.1 percent (See Technical Notes). Relative declines in both Michigan and the United States were slightly greater for the other than white population. Although age-adjusted rates for white males and females in Michigan are comparable to rates for these groups observed nationally, the rates for other than white males and females in Michigan have generally been somewhat below those for the nation in the past several years.

LEADING CAUSES OF DEATH

Deaths assigned to the 10 leading causes accounted for 85.4 percent of all deaths in 1982. Causes of death since 1979 are classified according to the *Ninth Revision International Classification of Diseases* (ICD-9) published by the World Health Organization. The cause-of-death ranking procedure used in Michigan is identical to that used by the National Center for Health Statistics (NCHS). It is based on a "List of 72 Selected Causes of Death," which NCHS constructed by combining titles in the "List of 282 Selected Causes of Death." This latter list, which is also used in this publication, was constructed by aggregating the detailed titles of ICD-9.

The numbers of deaths and the death rates for the 10 leading causes for 1982 are shown in Table 2.7, and the percentage of total deaths resulting from each of these causes is illustrated in Figure 2.5. The ranking of the 10 leading causes for 1982 was the same as that for 1981. In 1980 chronic liver disease and cirrhosis was ranked 8th and atherosclersis was ranked 9th. In 1981 and 1982 the order of these two causes was reversed. Crude death rates in Michigan were higher in 1982 than in 1981 for five of the ten leading causes. The rates were lower in 1982 for deaths due to cerebrovascular disease, accidents and adverse effects, pneumonia and influenza, and diabetes mellitus with chronic liver disease and cirrhosis at the same rate in each year.

The order of the 10 leading causes for the United States in 1982 was similar to that for Michigan. The only difference was in the order of the causes ranked 8th, 9th and 10th. Certain differences between the United States figures and those of Michigan should be noted. The overall Michigan death rate was significantly lower than the national rate. Nonetheless, Michigan's rates for diabetes mellitus, chronic liver disease and cirrhosis, atherosclerosis, and suicide were higher than comparable national rates (Table 2.7).

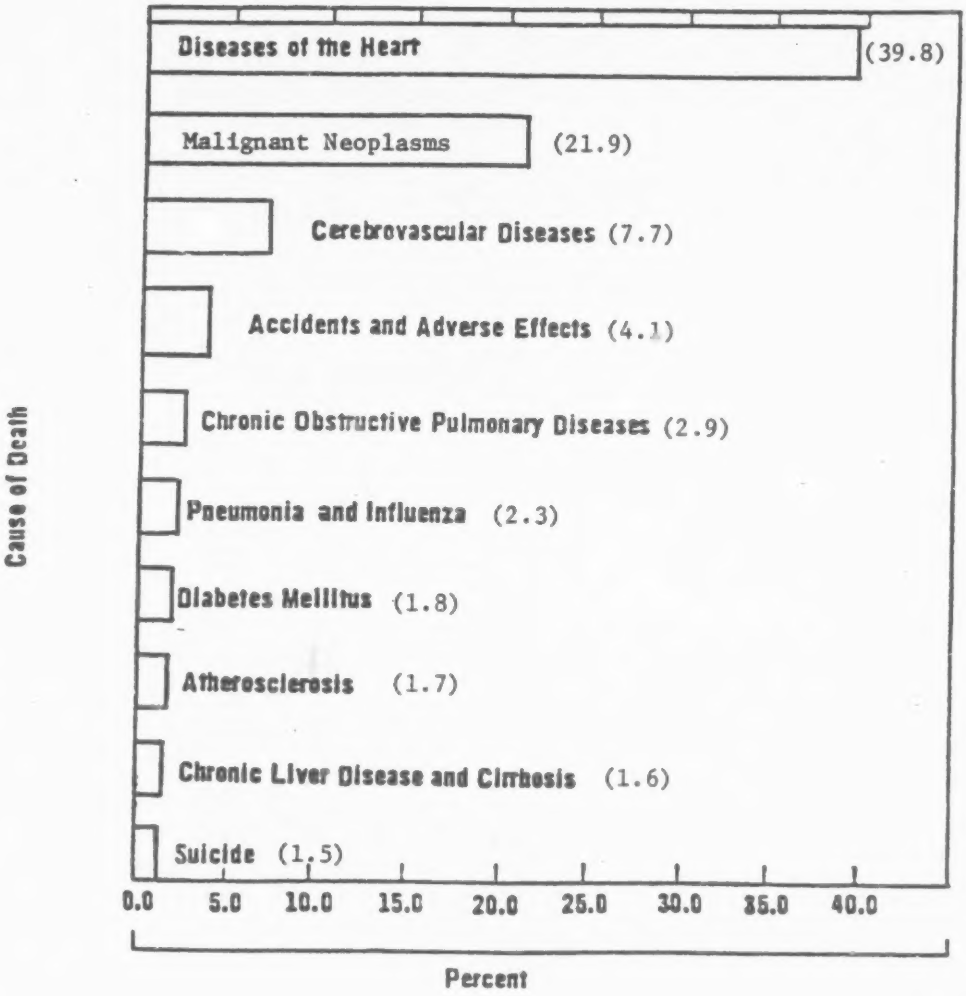
During the years 1968-1978 the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States* (ICDA-8) was used to classify causes of death. The introduction of the Ninth Revision in 1979 resulted in a change in the ranking of the 10 leading causes between 1978 and 1979. The ranking of the four leading causes of death, heart disease, cancer, stroke, and accidents, has not changed. However, the fifth leading cause of death since 1979, chronic obstructive pulmonary diseases and allied conditions, is a new category, comparable to the Eighth Revision categories of bronchitis, emphysema, asthma, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema. This

Table 2.7
Leading Causes of Death and Cause-Specific Rates, Michigan and United States Residents, 1982

RANK	CAUSE OF DEATH	NUMBER OF DEATHS		RATE	
		MICHIGAN	U.S.[1]	MICHIGAN	U.S.[1]
1	Diseases of the Heart	30,099	755,510	326.2	326.9
2	Malignant Neoplasms	16,566	435,760	179.5	188.6
3	Cerebrovascular Diseases	5,839	159,100	63.3	68.8
4	Accidents and Adverse Effects	3,113	94,320	33.7	40.8
5	Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,205	59,820	23.9	25.9
6	Pneumonia and Influenza	1,701	49,040	18.4	21.2
7	Diabetes Mellitus	1,347	33,130	14.6	14.3
8	Atherosclerosis	1,284	26,460	13.9	11.5
9	Chronic Liver Disease and Cirrhosis	1,244	27,180	13.5	11.8
10	Suicide	1,103	26,970	12.0	11.7
	Sub Total	64,501	1,667,290	699.0	720.2
	All Other Causes	11,035	318,710	119.6	137.7
	Total	75,536	1,986,000	818.6	857.8

[1] United States data are estimates based on a 10 percent sample of deaths.

FIGURE 2.5 - Leading Causes of Death, Michigan Residents, 1982



latter category was used increasingly by physicians during the 1970's in preference to more specific categories. During the years in which the Eighth Revision was used, bronchitis, emphysema, and asthma were grouped together for purposes of ranking, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema was not used in ranking. The causes ranked 6th to 10th since 1979 are the same as the causes ranked 5th to 9th in 1978, although the order is slightly different in 1982. The 10th leading cause of death in 1978, homicide, is no longer ranked among the top 10. The number of homicides in 1982 was 936.

Table 4.8 shows the numbers of deaths and death rates for several major causes for each year during this century. There has been no change in the ranking of the four leading causes since 1950. From 1950 through 1978 the ranks of 5th and 6th were held by diabetes mellitus and pneumonia and influenza, with pneumonia and influenza ranking 5th in 19 of the 29 years. For the past eight years pneumonia and influenza has ranked above diabetes. Atherosclerosis, previously termed arteriosclerosis, has consistently been among the ten leading causes of death, ranking 7th in 1950 and 8th in 1982. The 9th leading cause of death in 1982, chronic liver disease and cirrhosis (formerly titled cirrhosis of the liver) was not among the ten leading causes of death in 1950. This cause ranked 10th in 1954 and has been among the ten most frequent causes consistently since 1960. It was the 7th leading cause each year from 1969 through 1978. Suicide, the 10th leading cause in 1982, first ranked in the top ten in 1964 when it was the 10th leading cause. In 1982, seven of the ten leading causes of death were chronic conditions, one was an acute disease category, and two were external non-disease groupings.

While the most frequent causes of death among all Michigan residents have changed little in recent years, this does not imply similarity in the leading causes of death among residents at different ages, of different sexes or different races. Table 2.8 presents the five most frequent causes of death by age, sex and race. Careful examination of this table will disclose that major differences in the leading causes of death are associated with these three characteristics. No single cause of death is among the most frequent causes in all categories. Heart disease, accidents and malignant neoplasms have the most widespread significance, being present respectively in 29, 26, and 25 of the 32 age-sex-race groupings. The variation in leading causes of death by age is most evident among deaths to infants under one year. This category has little similarity to any other age group. External causes of death, including accidents, suicide and homicide, are predominant killers among persons 1 through 34 years of age. Among persons 35 years and over, chronic conditions are responsible for the

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982

TOTAL POPULATION[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	30,099	326.2
	2. Malignant Neoplasms	16,566	179.5
	3. Cerebrovascular Diseases	5,839	63.3
	4. Accidents	3,113	33.7
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,205	23.9
	All Causes	75,536	818.6
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	958	682.3
	2. Congenital Anomalies	319	227.2
	3. Accidents	40	28.5
	4. Diseases of the Heart	24	17.1
	5-6. Nephritis-Pneumonia and Influenza	15	10.7
	All Causes	1,672	1,190.8
1-4 Years	1. Accidents	108	21.3
	2. Congenital Anomalies	37	7.3
	3. Malignant Neoplasms	26	5.1
	4. Homicide	13	2.6
	5-7. Diseases of the Heart - Pneumonia and Influenza - Meningitis	9	1.8
	All Causes	278	54.8
5-14 Years	1. Accidents	185	13.0
	2. Malignant Neoplasms	55	3.9
	3. Homicide	29	2.0
	4. Congenital Anomalies	22	1.5
	5. Diseases of the Heart	13	0.9
	All Causes	382	26.9
15-24 Years	1. Accidents	660	36.2
	2. Homicide	225	12.3
	3. Suicide	207	11.4
	4. Malignant Neoplasms	113	6.2
	5. Diseases of the Heart	41	2.2
	All Causes	1,488	81.6
25-34 Years	1. Accidents	522	32.7
	2. Homicide	323	20.2
	3. Suicide	252	15.8
	4. Malignant Neoplasms	204	12.8
	5. Diseases of the Heart	138	8.6
	All Causes	2,024	126.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

TOTAL POPULATION[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Malignant Neoplasms	1,101	76.4
	2. Diseases of the Heart	1,014	70.4
	3. Accidents	417	28.9
	4. Chronic Liver Disease and Cirrhosis	250	17.3
	5. Suicide	238	16.5
	All Causes	4,103	284.7
50-64 Years	1. Diseases of the Heart	5,412	397.6
	2. Malignant Neoplasms	5,000	367.3
	3. Cerebrovascular Diseases	626	46.0
	4. Chronic Liver Disease and Cirrhosis	519	38.1
	5. Accidents	457	33.6
	All Causes	14,639	1,075.5
65 and Over	1. Diseases of the Heart	23,447	2,501.9
	2. Malignant Neoplasms	10,064	1,073.9
	3. Cerebrovascular Diseases	4,991	532.6
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,717	183.2
	5. Pneumonia and Influenza	1,397	149.1
	All Causes	50,947	5,436.2

[1] Subtotals by sex and race do not add to the grand total as the race was not stated on records for 55 males and 32 females. In addition, the sex was not stated on 6 records for white and 1 record for other than white persons. Age groups do not add to respective totals because records with age not stated are included only in the total.

[2] Rates may not agree with those shown elsewhere in this section since records of unknown sex and race were randomly allocated prior to rate calculation for the other tables, and were not included in calculations for this table.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

WHITE MALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	14,391	378.6
	2. Malignant Neoplasms	7,764	204.3
	3. Cerebrovascular Diseases	2,141	56.3
	4. Accidents	1,831	48.2
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,332	35.0
	All Causes	34,946	919.4
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	353	614.5
	2. Congenital Anomalies	137	238.5
	3. Accidents	16	27.9
	4. Diseases of the Heart	8	13.9
	5. Nephritis	7	12.2
	All Causes	651	1,133.3
1-4 Years	1. Accidents	43	20.9
	2. Malignant Neoplasms	15	7.3
	3. Congenital Anomalies	12	5.8
	4. Meningitis	5	2.4
	5. Pneumonia and Influenza	4	1.9
	All Causes	111	53.8
5-14 Years	1. Accidents	97	16.8
	2. Malignant Neoplasms	26	4.5
	3. Congenital Anomalies	10	1.7
	4. Suicide	8	1.4
	5. Homicide	6	1.0
	All Causes	186	32.2
15-24 Years	1. Accidents	468	60.6
	2. Suicide	150	19.4
	3. Malignant Neoplasms	54	7.0
	4. Homicide	51	6.6
	5. Diseases of the Heart	18	2.3
	All Causes	842	109.1
25-34 Years	1. Accidents	355	53.2
	2. Suicide	173	25.9
	3. Malignant Neoplasms	78	11.7
	4. Homicide	68	10.2
	5. Diseases of the Heart	53	7.9
	All Causes	903	135.3

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

WHITE MALES[3]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Diseases of the Heart	624	102.2
	2. Malignant Neoplasms	413	67.6
	3. Accidents	254	41.6
	4. Suicide	154	25.2
	5. Chronic Liver Disease and Cirrhosis	99	16.2
	All Causes	1,904	311.9
50-64 Years	1. Diseases of the Heart	3,286	574.0
	2. Malignant Neoplasms	2,294	400.7
	3. Chronic Liver Disease and Cirrhosis	286	50.0
	4. Accidents	254	44.4
	5. Cerebrovascular Diseases	252	44.0
	All Causes	7,612	1,329.7
65 and Over	1. Diseases of the Heart	10,395	3,069.6
	2. Malignant Neoplasms	4,881	1,441.3
	3. Cerebrovascular Diseases	1,814	535.7
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,097	323.9
	5. Pneumonia and Influenza	660	194.9
	All Causes	22,736	6,713.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

OTHER THAN WHITE MALES[3]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	1,722	248.4
	2. Malignant Neoplasms	1,200	173.1
	3. Homicide	490	70.7
	4. Cerebrovascular Diseases	332	47.9
	5. Accidents	297	42.8
	All Causes	5,769	832.2
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	216	1,529.3
	2. Congenital Anomalies	31	219.5
	3. Accidents	9	63.7
	4. Diseases of the Heart	5	35.4
	5-6. Pneumonia and Influenza - Nephritis	4	28.3
	All Causes	327	2,315.2
[illegible]-4 Years	1. Accidents	21	39.2
	2. Homicide	4	7.5
	3-4. Diseases of the Heart - Congenital Anomalies	3	5.6
	5. Pneumonia and Influenza	2	3.7
	All Causes	42	78.3
5-14 Years	1. Accidents	30	19.9
	2. Homicide	9	6.0
	3-5. Malignant Neoplasms - Congenital Anomalies - Suicide	3	2.0
	All Causes	57	37.9
15-24 Years	1. Homicide	118	82.2
	2. Accidents	32	22.3
	3. Suicide	29	20.0
	4. Malignant Neoplasms	9	6.3
	5-6. Diseases of the Heart - Chronic Obstructive Pulmonary Diseases	5	3.5
	All Causes	223	155.4
25-34 Years	1. Homicide	191	158.6
	2. Accidents	62	51.5
	3. Diseases of the Heart	39	32.4
	4. Suicide	24	19.9
	5. Chronic Liver Disease and Cirrhosis	20	16.6
	All Causes	504	418.5

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

OTHER THAN WHITE MALES[3]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Diseases of the Heart	153	163.3
	2. Homicide	102	108.9
	3. Malignant Neoplasms	85	90.7
	4. Chronic Liver Disease and Cirrhosis	65	69.4
	5. Accidents	55	58.7
	All Causes	677	722.8
50-64 Years	1. Diseases of the Heart	516	672.7
	2. Malignant Neoplasms	455	593.2
	3. Cerebrovascular Diseases	82	106.9
	4. Chronic Liver Disease and Cirrhosis	68	88.7
	5. Accidents	53	69.1
	All Causes	1,491	1,943.8
65 and Over	1. Diseases of the Heart	999	2,457.6
	2. Malignant Neoplasms	633	1,557.2
	3. Cerebrovascular Diseases	211	519.1
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	73	179.6
	5. Pneumonia and Influenza	64	157.4
	All Causes	2,448	6,022.1

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

WHITE FEMALES[a]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	12,383	311.6
	2. Malignant Neoplasms	6,712	168.9
	3. Cerebrovascular Diseases	2,983	75.1
	4. Accidents	844	21.2
	5. Atherosclerosis	761	19.2
	All Causes	30,307	762.7
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	236	430.9
	2. Congenital Anomalies	118	215.4
	3. Accidents	8	14.6
	4. Diseases of the Heart	6	11.0
	5. Nephritis	3	5.5
	All Causes	456	832.5
1-4 Years	1. Accidents	28	14.4
	2. Congenital Anomalies	16	8.2
	3. Malignant Neoplasms	11	5.6
	4-5. Diseases of the Heart - Homicide	4	2.1
	All Causes	89	45.7
5-14 Years	1. Accidents	48	8.8
	2. Malignant Neoplasms	23	4.2
	3. Homicide	7	1.3
	4-5. Congenital Anomalies - Diseases of the Heart	5	0.9
	All Causes	108	19.8
15-24 Years	1. Accidents	136	18.0
	2. Malignant Neoplasms	46	6.1
	3. Homicide	28	3.7
	4. Suicide	23	3.0
	5. Diseases of the Heart	12	1.6
	All Causes	325	43.0
25-34 Years	1. Malignant Neoplasms	93	13.9
	2. Accidents	85	12.7
	3. Suicide	44	6.6
	4. Homicide	33	4.9
	5. Diseases of the Heart	27	4.0
	All Causes	410	61.3

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

WHITE FEMALES[a]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Malignant Neoplasms	516	82.1
	2. Diseases of the Heart	157	25.0
	3. Accidents	89	14.2
	4. Suicide	68	10.8
	5. Chronic Liver Disease and Cirrhosis	53	8.4
	All Causes	1,151	183.2
50-64 Years	1. Malignant Neoplasms	1,920	307.7
	2. Diseases of the Heart	1,241	198.9
	3. Cerebrovascular Diseases	220	35.3
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	140	22.4
	5. Accidents	131	21.0
	All Causes	4,473	716.9
65 and Over	1. Diseases of the Heart	10,931	2,175.8
	2. Malignant Neoplasms	4,103	816.7
	3. Cerebrovascular Diseases	2,695	536.4
	4. Atherosclerosis	748	148.9
	5. Pneumonia and Influenza	617	122.8
	All Causes	23,295	4,636.9

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

OTHER THAN WHITE FEMALES[3]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	1,567	206.4
	2. Malignant Neoplasms	880	115.9
	3. Cerebrovascular Diseases	380	50.0
	4. Certain Conditions Originating in the Perinatal Period	152	20.0
	5. Accidents	131	17.3
	All Causes	4,420	582.2
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	152	1,080.2
	2. Congenital Anomales	29	206.1
	3. Accidents	7	49.7
	4. Diseases of the Heart	5	35.5
	5. Pneumonia and Influenza	3	21.3
	All Causes	233	1,655.9
[illegible]-4 Years	1. Accidents	16	30.3
	2. Congenital Anomalies	6	11.4
	3. Homicide	4	7.6
	4-9. Cerebrovascular Diseases - Chronic Obstructive Pulmonary Diseases - Hernia - Nephritis - Benign Neoplasms - Anemia	1	1.9
	All Causes	36	68.2
5-14 Years	1. Accidents	9	6.1
	2. Homicide	7	4.7
	3. Congenital Anomalies	4	2.7
	4. Malignant Neoplasms	3	2.0
	5. Pneumonia and Influenza	2	1.3
	All Causes	30	20.2
15-24 Years	1. Homicide	28	18.5
	2. Accidents	20	13.2
	3. Diseases of the Heart	6	4.0
	4-6. Malignant Neoplasms - Cerebrovascular Diseases - Suicide	4	2.6
	All Causes	92	60.6
25-34 Years	1. Homicide	31	22.1
	2. Accidents	19	13.6
	3-4. Diseases of the Heart - Malignant Neoplasms	18	12.9
	5-6. Chronic Liver Disease and Cirrhosis - Cerebrovascular	11	7.9
	All Causes	200	142.9

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1982 (Continued)

OTHER THAN WHITE FEMALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Malignant Neoplasms	87	80.0
	2. Diseases of the Heart	77	70.8
	3. Chronic Liver Disease and Cirrhosis	33	30.4
	4. Homicide	23	21.2
	5. Cerebrovascular Diseases	21	19.3
	All Causes	364	334.9
50-64 Years	1. Diseases of the Heart	356	404.3
	2. Malignant Neoplasms	324	367.9
	3. Cerebrovascular Diseases	72	81.8
	4. Chronic Liver Disease and Cirrhosis	40	45.4
	5. Diabetes Mellitus	39	44.3
	All Causes	1,034	1,174.2
65 and Over	1. Diseases of the Heart	1,104	1,989.2
	2. Malignant Neoplasms	444	800.0
	3. Cerebrovascular Diseases	269	484.7
	4. Diabetes Mellitus	65	117.1
	5. Pneumonia and Influenza	54	97.3
	All Causes	2,431	4,380.1

majority of deaths.

DISEASES OF THE HEART

The leading cause of death, heart disease, caused the deaths of 30,099 Michigan residents in 1982. This is more than the number of deaths from the next five largest categories combined. There were 73 more deaths from heart disease in 1982 than in 1981. The crude rate of 326.2 deaths per 100,000 population from this cause in 1982 is just above the rate of 325.5 in 1981.

The median age of persons who died from heart disease was 75 years, compared to a median of 72 years for deaths from all causes. Of the 30,099 deaths due to diseases of the heart, 53.6 percent were to males. The median age at death for males was 72 years compared to 80 years for females. The median age of 72 years for white males exceeded that for other than white males by 4 years. The median age at death for white females was 80 years, 8 years above that for other than white females (Table 2.9).

Table 2.10 presents death rates for diseases of the heart by age, race and sex. Note that the death rate associated with this cause rises markedly with advancing age. Heart disease was the underlying cause of death for 33 persons below 5 years of age or about 1.7 percent of all deaths in this age group. In contrast, 50.4 percent of all deaths in the age group 85 and over were attributed to this cause in 1982. The heart disease death rate was 8,057.2 among persons 85 years of age or older.

Examination of Table 2.10 reveals that the heart disease death rate for males was substantially higher than that for females (359.1 compared to 295.0 per 100,000 population). The relationship between rates for males and females is graphically displayed in Figure 2.6. The age-specific heart disease death rates for males and females were virtually the same for the age group 1-14. Rates for males were above those of females in all other age groups. The greatest relative differentials occurred from age 35 through 64 with rates for males ranging from 2.5 to 3.5 times the corresponding rates for females. The gap between rates for males and females became progressively smaller after age 44. Among persons 85 years of age or over the rate of 9,408.6 for males was 26 percent above that for females (7,470.8). The age-adjusted death rate for males was 2.0 times that for females.

A comparison of 1982 heart disease death rates for males by race is graphically presented in Figure 2.7. Rates for other than white males were higher than those for white males for all age intervals below 65 and lower than rates for white males in all age intervals at age 65 or over. The rate for white males across all ages was 379.2 compared to 249.0 for other than white males. This differential stems

Table 2.9
Deaths Due to Diseases of the Heart by Age, Race, and Sex[1], Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	24	13	11	14	8	6	10	5	5	-	-	-
1-4	9	5	4	6	2	4	3	3	-	-	-	-
5-9	3	3	-	2	2	-	1	1	-	-	-	-
10-14	10	4	6	8	3	5	2	1	1	-	-	-
15-19	13	8	5	11	7	4	2	1	1	-	-	-
20-24	28	15	13	19	11	8	9	4	5	-	-	-
25-29	50	29	21	27	17	10	22	12	10	1	-	1
30-34	88	63	25	53	36	17	35	27	8	-	-	-
35-39	179	135	44	121	97	24	57	37	20	1	1	-
40-44	319	240	79	243	188	55	75	51	24	1	1	-
45-49	516	404	112	417	339	78	98	65	33	1	-	1
50-54	1065	812	253	878	693	185	186	118	68	1	1	-
55-59	1781	1276	505	1481	1083	398	296	189	107	4	4	-
60-64	2566	1725	841	2168	1510	658	390	209	181	8	6	2
65-69	3414	2212	1202	2971	1965	1006	438	244	194	5	3	2
70-74	4053	2361	1692	3563	2117	1446	484	239	245	6	5	1
75-79	4522	2384	2138	4134	2186	1948	386	197	189	2	1	1
80-84	4457	1975	2481	4107	1810	2296	349	164	185	1	1	-
85-89	3901	1526	2375	3648	1431	2217	252	95	157	1	-	1
90+	3100	947	2153	2904	886	2018	194	60	134	2	1	1
Not Stated	1	-	-	1	-	-	-	-	-	-	-	-
All Ages	30099	16137	13960	26776	14391	12383	3289	1722	1567	34	24	10
Median Age at Last Birthday	75	72	80	76	72	80	70	68	72	64	*	*

[1] The deaths of 2 white persons with sex not stated are included only in the total columns.

Table 2.10
Heart Disease Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	326.2	359.1	295.0	344.8	379.2	311.9	226.8	249.0	206.5
Under 1 Year	17.1	18.2	16.0	12.5	13.9	11.0	35.5	35.4	35.5
1-14 Years	1.1	1.2	1.1	1.1	0.9	1.2	1.5	2.4	*
15-24 Years	2.2	2.5	2.0	2.0	2.3	1.6	3.7	3.5	4.0
25-34 Years	8.6	11.7	5.7	6.1	7.9	4.2	21.9	32.4	12.9
35-44 Years	48.8	74.8	23.7	41.7	66.2	17.8	91.5	130.3	57.3
45-54 Years	175.6	278.1	78.8	166.1	270.2	66.3	236.8	333.9	155.2
55-64 Years	493.7	723.5	289.0	470.4	708.9	257.5	669.5	835.2	524.6
65-74 Years	1310.0	1837.9	901.0	1290.3	1848.5	858.5	1469.0	1753.1	1246.3
75-84 Years	3203.7	4183.7	2623.8	3251.0	4285.1	2648.9	2754.8	3315.0	2369.4
85 Years and Over	8057.2	9408.6	7470.8	8164.0	9604.9	7544.5	6756.6	7202.6	6540.8
Age-Adjusted Rate[2]	210.3	291.2	147.0	206.0	289.9	140.5	236.7	293.4	191.0

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

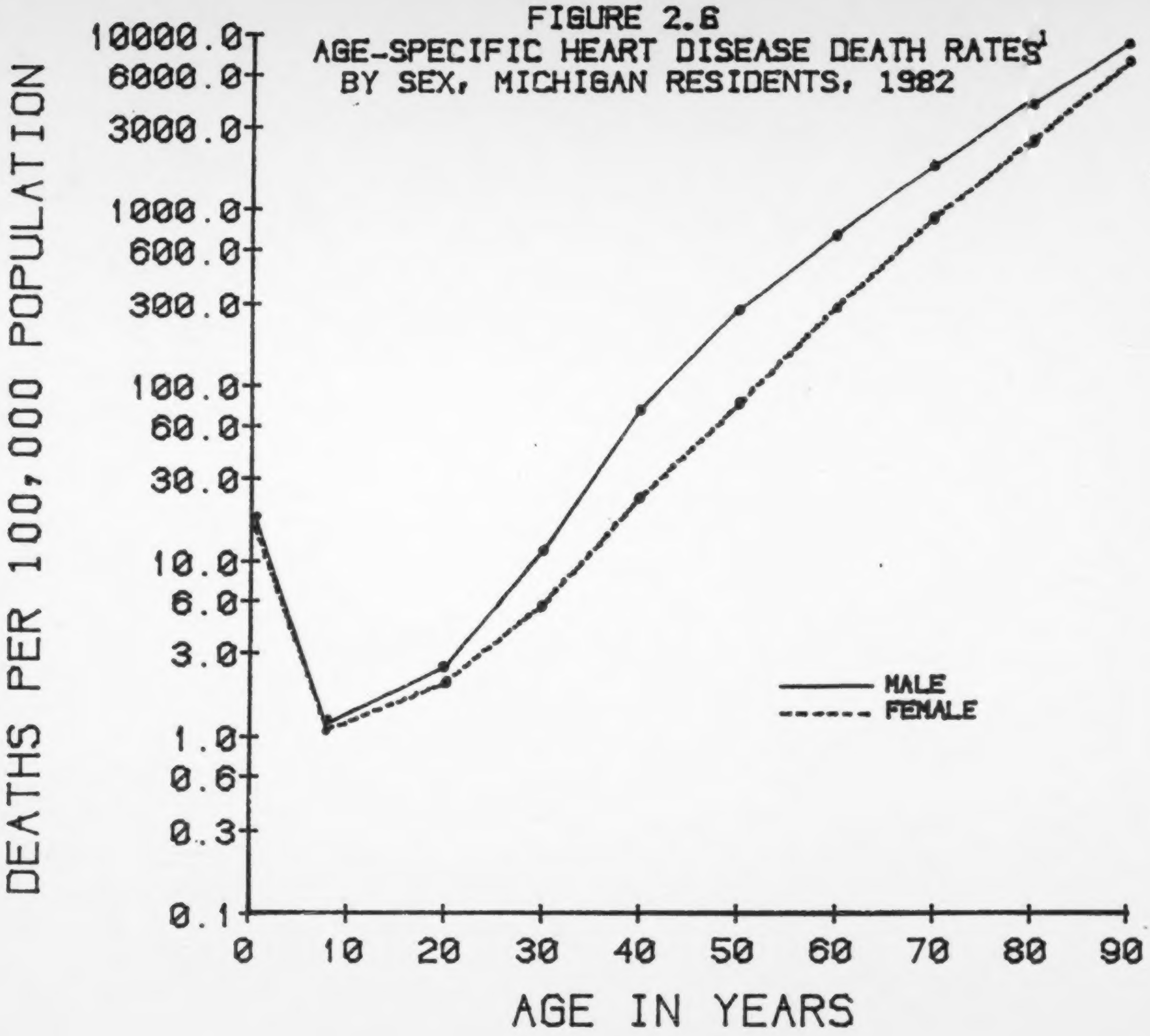


FIGURE 2.6
AGE-SPECIFIC HEART DISEASE DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1982

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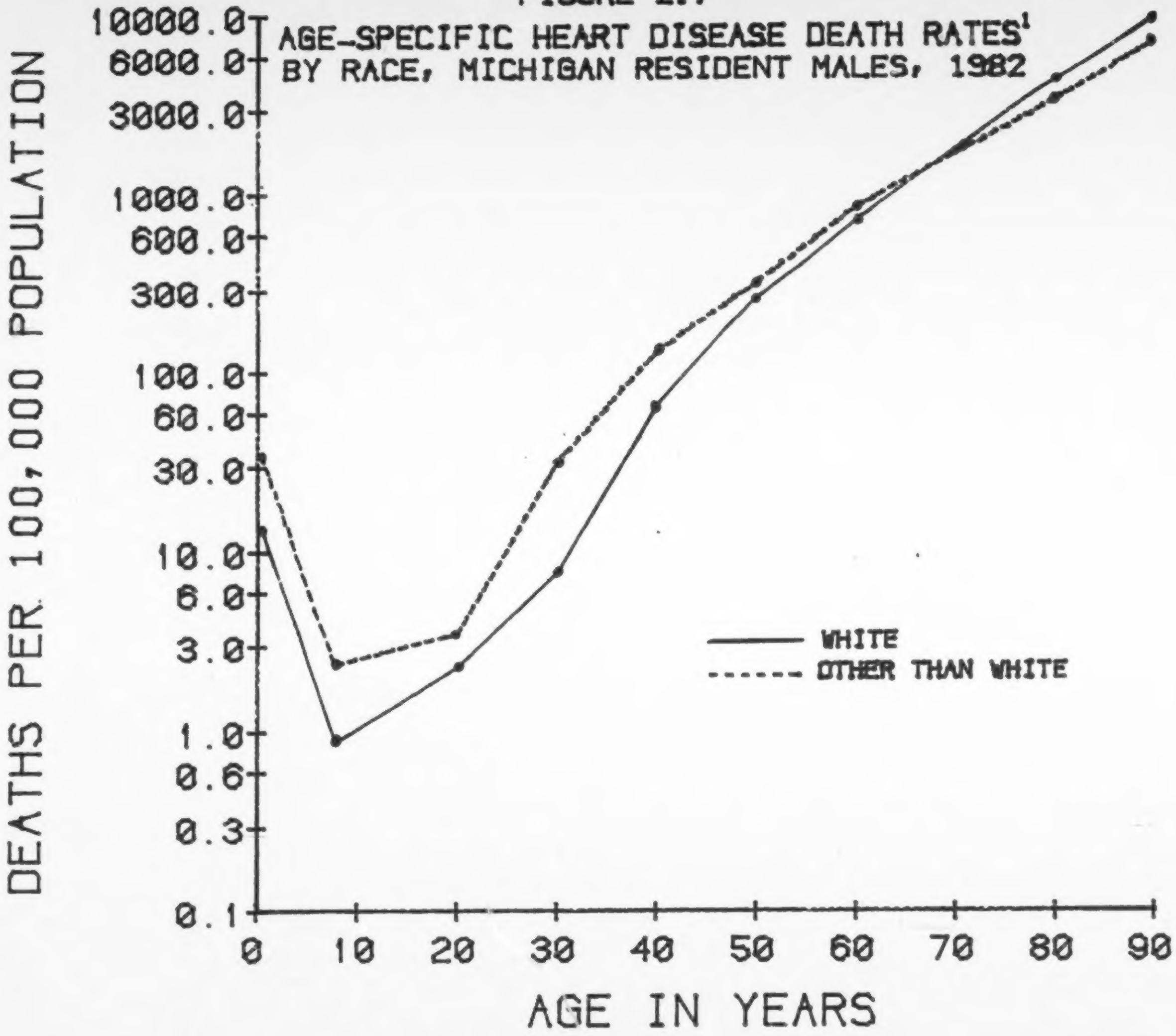
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.7



AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1982

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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

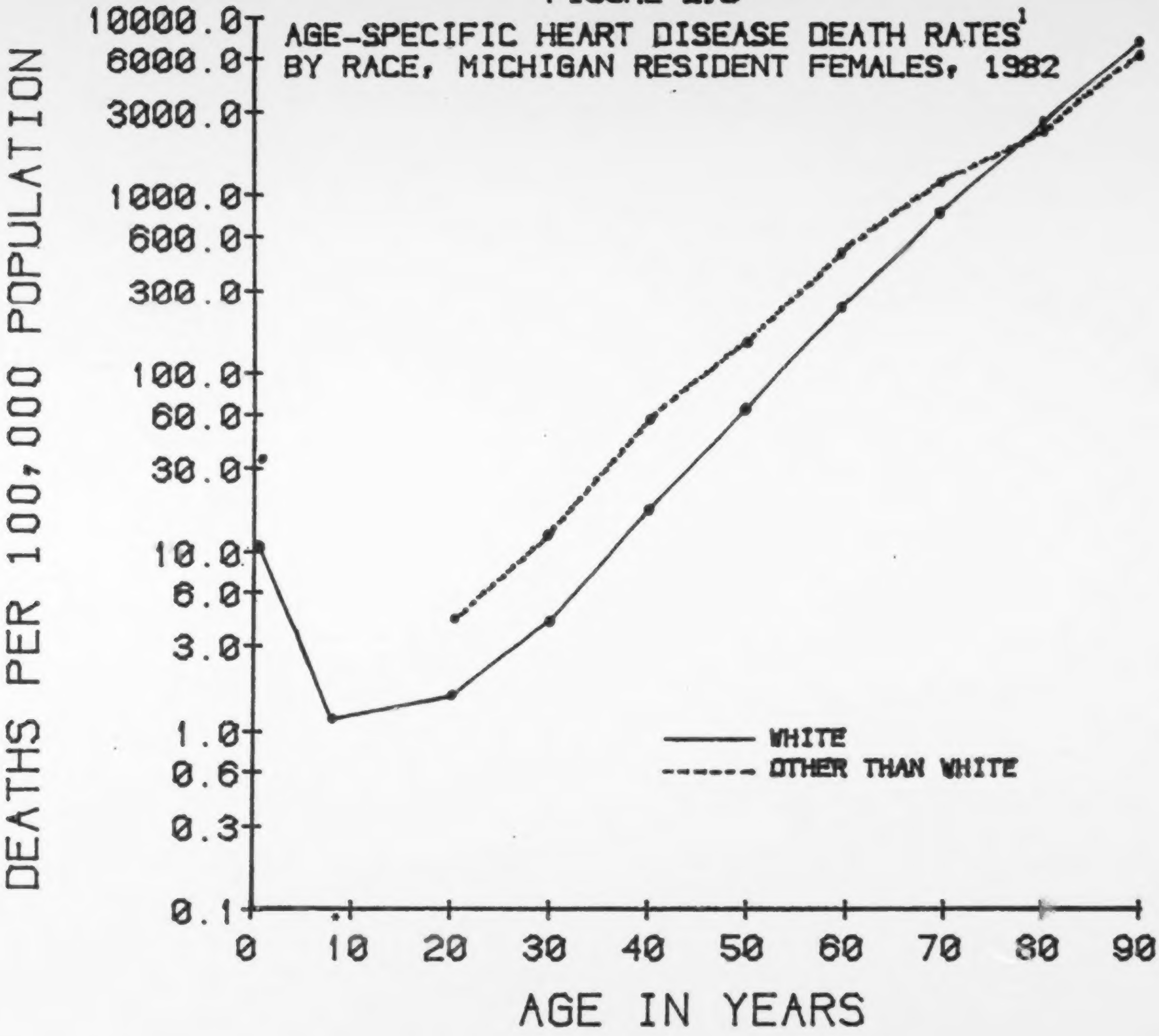

FIGURE 2.8

AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1982 from the fact that a greater proportion of the white male population was in the older age groups where heart disease death rates were particularly high. The age-adjusted heart disease death rate for white males was 289.9 in 1982, 1.2 percent below the rate of 293.4 for other than white males.

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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

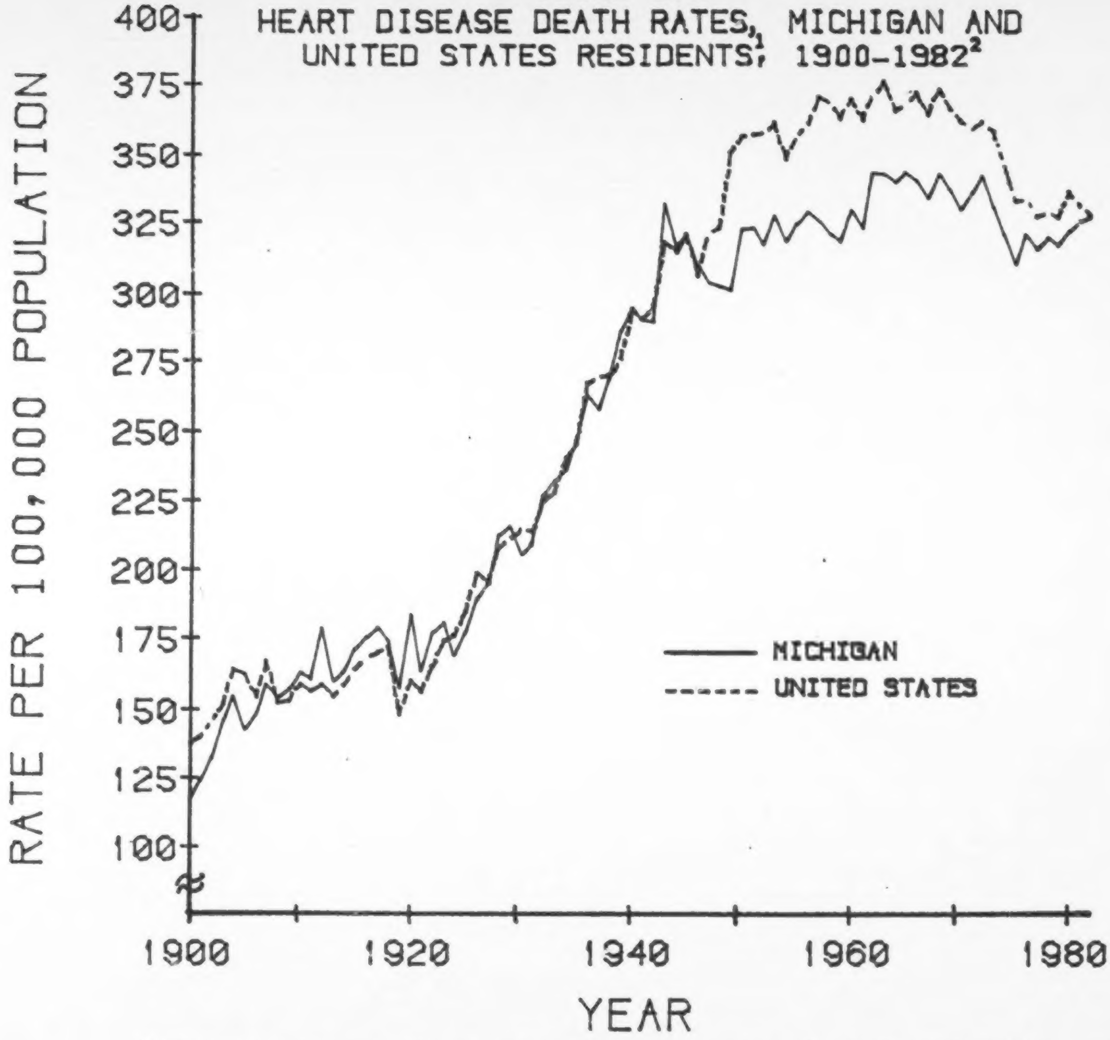
*Rate is considered statistically unreliable.

Heart disease death rates for white and other than white females are displayed in Figure 2.8. Rates for other than white females were greater than those for white females between ages 15 and 74. After age 44 the relative differentials steadily decreased with advancing age. Beyond age 74 the rate for white females exceeded that for other than white females with a 15.3 percent differential at ages of 85 and over. Although the rate for white females of all ages (311.9) was substantially above the comparable rate for other than white females (206.5), this relationship is reversed when the differing age distributions of the two populations are considered. The age-adjusted rate for other than white females was 191.0 while that for white females was 140.5.

In 1900 the crude heart disease death rate in Michigan was 117.1, the lowest rate of this century. Heart disease death rates rose through the time period 1900-1950 and have remained relatively stable over the last thirty-one years. The highest rate observed during the century was 343.1 in 1965. The rate of 326.2 for 1982 was 5 percent below the peak rate observed in 1965. The rate for Michigan was consistently close to the national rate until 1947. Since that time the crude rate for Michigan has been below that of the nation. In 1982, the rate for the nation was an estimated 326.9, roughly the same as the rate of death due to heart disease for Michigan (Figure 2.9).

Age-adjusted death rates for diseases of the heart since 1970 are presented in Table 2.11. These data indicate a downward trend in heart disease death rates for the population as a whole and for each race-sex subgroup individually. Between 1970 and 1972 the rate for Michigan remained constant. Since 1972 the rate has declined each year, with the exception of 1976. The age-adjusted death rate for the nation declined each year between 1970 and 1979. The 1980 provisional rate for the United States exceeded by 0.9 percent the 1979 rate. The age-adjusted rate for Michigan declined by 19 percent between 1970 and 1982 whereas the age-adjusted rate for the nation declined by 25 percent (see Technical Notes). The age-adjusted rate for Michigan has been above that for the nation consistently since 1970. In 1982 Michigan's rate was 10.2 percent above the national rate. Age-adjusted rates for other than white females have been well above those for white females in both Michigan and the United States. In Michigan age-adjusted rates for other than white males have tended to be slightly below those for white males. This has not been the case for

FIGURE 2.9
HEART DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1982[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Heart Disease death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.11
Age-Adjusted Heart Disease Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	260.4	352.2	181.2	257.0	352.5	175.1	280.6	336.6	230.2
	1971	259.7	358.7	175.5	256.0	359.1	168.9	280.5	338.2	228.3
	1972	260.5	355.2	180.3	257.0	354.3	174.9	281.1	352.2	218.4
	1973	247.7	339.2	170.8	244.1	338.2	165.2	269.3	335.9	210.8
	1974	235.6	321.7	163.7	233.0	322.6	158.4	249.0	304.5	200.8
	1975	226.2	312.2	154.5	225.2	314.5	151.1	226.0	283.2	176.3
	1976	228.0	316.6	155.4	226.3	317.9	151.6	235.6	297.9	182.4
	1977	221.5	308.3	150.7	218.8	309.1	145.4	235.6	292.4	187.1
	1978	219.0	302.4	151.2	215.7	302.2	145.7	239.6	296.5	191.9
	1979	215.4	298.5	148.5	212.1	297.6	143.5	234.2	297.9	181.5
	1980	214.9	295.5	150.6	210.9	293.7	145.0	239.9	303.6	188.4
	1981	213.1	295.7	146.8	209.0	294.6	140.4	238.6	297.0	190.3
	1982	210.3	291.2	147.0	206.0	289.9	140.5	236.7	293.4	191.0
U.S.	1970	253.6	348.5	175.2	249.1	347.6	167.8	288.9	350.8	236.6
	1971	249.3	344.1	171.7	245.1	343.5	164.8	280.3	343.2	227.8
	1972	247.9	343.1	170.3	243.5	341.8	163.4	281.1	348.7	225.8
	1973	242.4	337.3	165.6	237.9	336.0	158.7	276.9	343.6	222.5
	1974	230.3	321.3	157.1	226.4	320.3	150.8	259.7	325.1	206.8
	1975	217.8	305.7	147.4	214.5	305.1	141.9	241.8	305.9	190.1
	1976	213.6	300.2	144.4	210.4	299.6	139.2	237.0	301.6	185.1
	1977	206.9	291.3	139.9	203.3	290.2	134.4	233.0	296.3	182.4
	1978	203.8	286.2	138.5	200.2	284.7	133.3	229.4	294.6	178.1
	1979	199.5	278.9	136.8	195.6	276.8	131.3	227.4	291.8	177.3
	1980	202.0	280.4	140.3	197.6	277.5	134.6	234.2	299.6	183.5
	1981	196.3[3]	---	---	---	---	---	---	---	---
	1982	190.8[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Provisional.

Michigan over the last three years nor for the nation historically.

The most prevalent type of heart disease death is acute myocardial infarction (12,035 deaths in 1982), commonly referred to as a "coronary" (Table 2.12). The second most frequent is old myocardial infarction and other forms of chronic ischemic heart disease. In 1982 there were 10,206 deaths attributed to this cause. Together, these causes accounted for 73.9 percent of all Michigan resident deaths from heart disease. Of the remaining 7,858 heart disease deaths, 75.1 percent were attributed to all other and ill-defined forms of heart disease (4,837 deaths) and heart failure (1,065 deaths).

The probability of eventually dying from heart disease, based on Michigan resident death data from 1980, 1981, and 1982 is 0.421 for males and 0.437 for females at birth. The chance associated with dying from heart disease increases steadily for both sexes with advancing age as certain competing causes of death become less likely. By age 85, the observed probability is 0.484 for males and 0.515 for females. At all ages the probability of death eventually being caused by heart disease is greater for females. These differentials by sex are smallest between ages 25 and 50. The higher probability for females reflects smaller chances of death due to some cause other than heart disease (Figure 2.10).

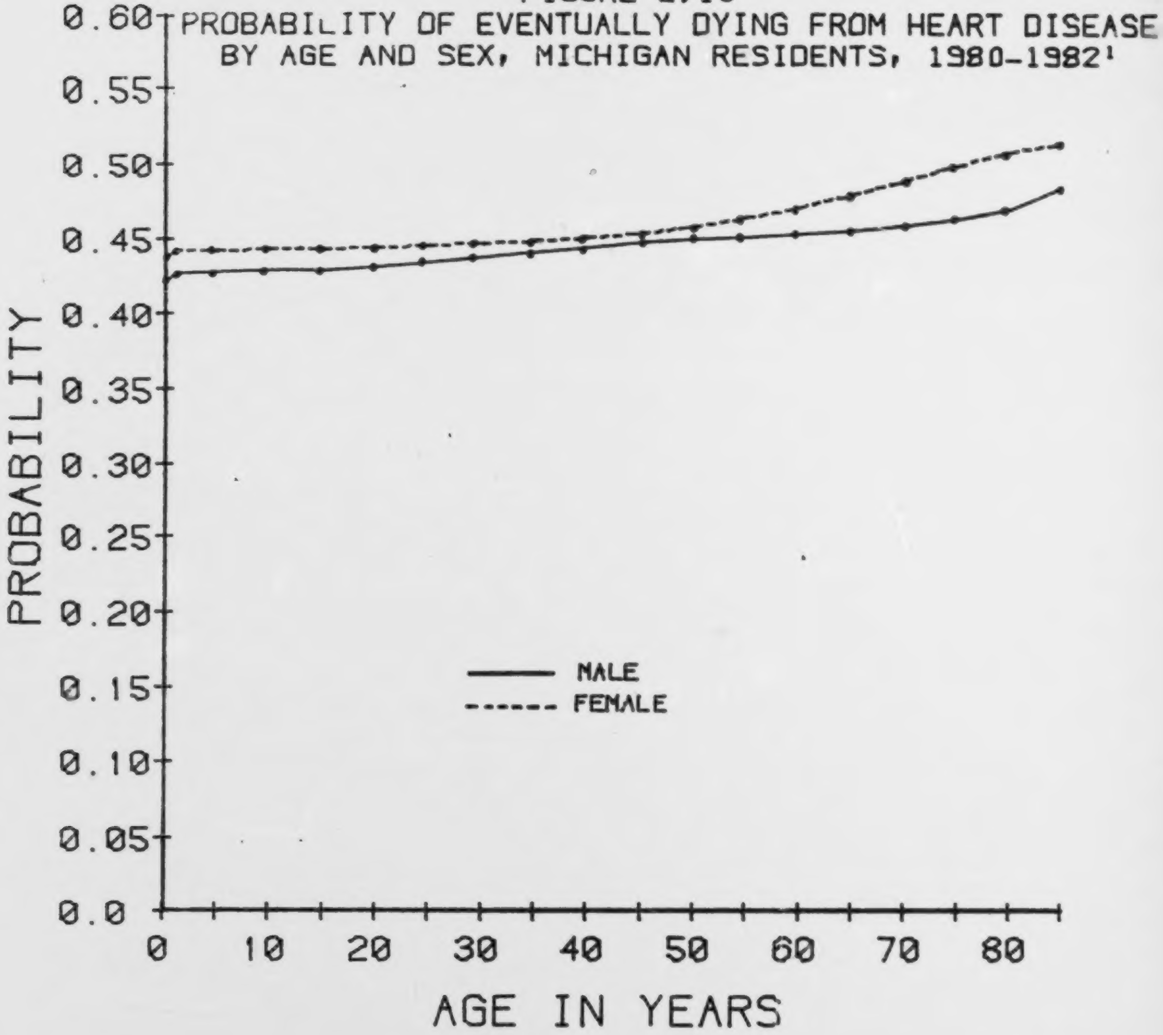
An apparent inconsistency can be noted by review of Figure 2.6 and Figure 2.10. The heart disease mortality rate for males is higher than that for females over nearly all ages, yet the chance of eventual death due to heart disease is slightly greater for females at all ages. This paradox is explained by a comparison of these two measures. The cause-specific mortality rate measures the proportion of a population that died from the particular cause over a certain period of time. The probability estimate takes into account the present age and cause-specific mortality rates and the life expectancy of the population. A greater proportion of all females now alive are expected to live into the older age intervals where they will be subject to the high heart disease mortality rates characteristic of those age groups. The effect of the longer female life span outweighs the effect of the higher mortality rate for males from heart disease.

Table 2.12
Deaths Due to Diseases of the Heart by Specific Cause, Michigan Residents, 1982

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
136	Acute Myocardial Infarction	12,035	40.0
139	Old Myocardial Infarction and Other Forms of Chronic Ischemic Heart Disease	10,206	33.9
148	All Other and Ill-Defined Forms of Heart Disease	4,837	16.1
146	Heart Failure	1,065	3.5
133	Hypertensive Heart Disease	666	2.2
140	Diseases of Pulmonary Circulation	426	1.4
144	Aortic Valve Disorders	188	0.6
135	Hypertensive Heart and Renal Disease	116	0.4
131	All Other Chronic Rheumatic Heart Disease	111	0.4
128	Diseases of Mitral Valve	100	0.3
137	Other Acute and Subacute Forms of Ischemic Heart Disease	76	0.3
147	Myocarditis, Unspecified and Myocardial Degeneration	59	0.2
145	All Other Diseases of Endocardium	52	0.2
130	Diseases of Mitral and Aortic Valves	36	0.1
141	Acute and Subacute Endocarditis	36	0.1
143	Mitral Valve Disorders	32	0.1
142	Acute Pericarditis, Acute Myocarditis, and Other Diseases of Pericardium	25	0.1
138	Angina Pectoris	18	0.1
129	Diseases of Aortic Valve	12	0.0
127	Acute Rheumatic Fever	3	0.0
	Total	30,099	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the *International Classification of Diseases*, WHO.

FIGURE 2.10
PROBABILITY OF EVENTUALLY DYING FROM HEART DISEASE BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CANCER

Of 75,536 Michigan resident deaths in 1982, 16,566 were attributed to cancer. Although not the leading cause of death in Michigan or the United States, cancer affects all the human body's major systems and persons of all ages. The frequency of death due to cancer was 55.0 percent of the number of deaths due to heart disease across all ages, but the number of cancer deaths below age 55 was greater than the number of deaths due to heart disease below age 55. The median age at death for cancer was 68 years, well below the median age of 75 years for heart disease deaths (Table 2.13).

Of the 16,566 cancer deaths in 1982 occurring to Michigan residents, 54.1 percent were to males. The median age at death was 69 years for white males and 68 years for white females. The median ages at death for other than white persons who died of cancer were 65 years for males and females.

Cancer death rates by age, race and sex are presented in Table 2.14. The cancer death rate across all ages in 1982 was higher for males (199.6) than for females (160.5). The cancer death rates displayed in Figure 2.11 show a strong increase in mortality with advancing age. Mortality rates for males were higher than those for females below age 25. In the age groups 25-34 years and 35-44 years the rates for females were higher (16.1 percent and 15.5 percent, respectively) than those for males. After age 44 the rates for males were greater than those for females. Between ages 45 and 84 the relative differential increased steadily, from 7.9 percent in the 45-54 year age group to 111.5 percent in the age group 85 years and over. The age-adjusted cancer death rate for males was 49 percent above that for females.

Cancer death rates for white and other than white males recorded in Table 2.14 are graphically displayed in Figure 2.12. The rates for these groups were similar below age 35. Rates for other than white males exceeded those for white males at all ages beyond 34 years excepting only 85 years and over. The largest relative differential occurred in the age group 45-54 years, where the rate for other than white males exceeded by 55.8 percent the rate for white males. Although the crude death rate for other than white males was below the comparable rate for white males, the age-adjusted rate for other than white males was 25 percent higher than the age-adjusted rate for white males.

Cancer death rates for white females were above those for other than white females below age 45 and in the age groups of 75 and over (Figure 2.13). The crude rate for white females was 46 percent higher than the crude rate for other than white females. The age-adjusted rate for other

Table 2.13
Deaths Due to Cancer by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	3	3	-	3	3	-	-	-	-	-	-	-
1-4	26	15	11	26	15	11	-	-	-	-	-	-
5-9	22	11	11	20	10	10	2	1	1	-	-	-
10-14	33	18	15	29	16	13	4	2	2	-	-	-
15-19	45	27	18	38	22	16	7	5	2	-	-	-
20-24	68	36	32	62	32	30	6	4	2	-	-	-
25-29	72	29	43	63	27	36	9	2	7	-	-	-
30-34	132	64	68	108	51	57	24	13	11	-	-	-
35-39	186	83	103	161	70	91	25	13	12	-	-	-
40-44	346	159	187	293	130	163	53	29	24	-	-	-
45-49	569	256	313	475	213	262	94	43	51	-	-	-
50-54	1060	566	494	887	458	429	172	107	65	1	1	-
55-59	1682	889	793	1418	731	687	263	158	105	1	-	1
60-64	2258	1298	960	1909	1105	804	344	190	154	5	3	2
65-69	2541	1459	1082	2218	1264	954	322	195	127	1	-	1
70-74	2417	1364	1053	2113	1194	919	302	168	134	2	2	-
75-79	2151	1207	944	1951	1073	878	200	134	66	-	-	-
80-84	1517	798	719	1369	716	653	148	82	66	-	-	-
85-89	959	471	488	893	436	457	66	35	31	-	-	-
90+	479	217	262	440	198	242	39	19	20	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	16566	8970	7596	14476	7764	6712	2080	1200	880	10	6	4
Median Age At Last Birthday	68	68	68	68	69	68	65	65	65	*	*	*

Table 2.14
Cancer Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

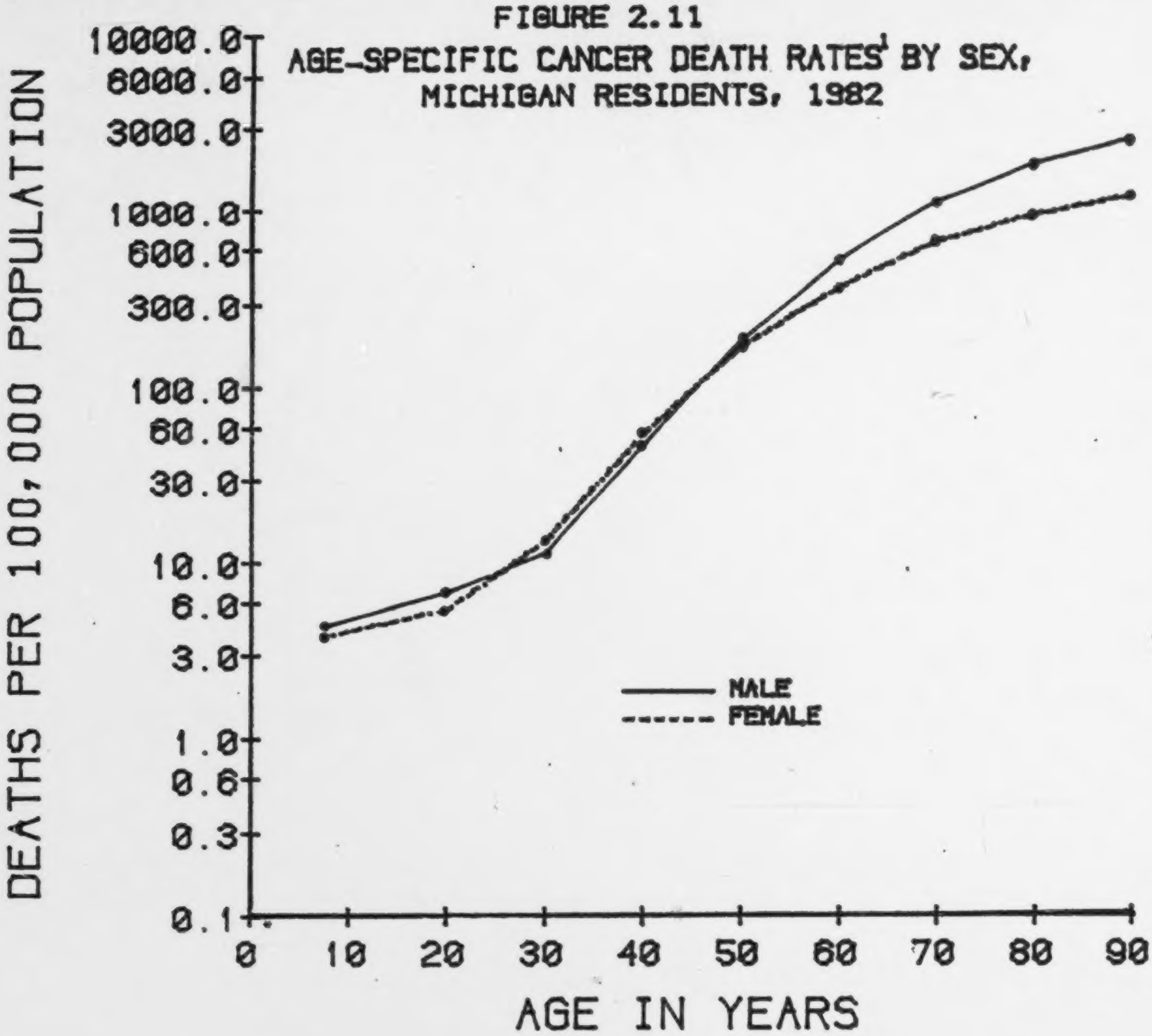
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	179.5	199.6	160.5	186.3	204.4	169.0	143.3	173.1	116.0
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	4.2	4.5	3.9	4.9	5.2	4.6	1.5	*	*
15-24 Years	6.2	6.9	5.5	6.5	7.0	6.1	4.4	6.3	*
25-34 Years	12.8	11.8	13.7	12.8	11.7	13.9	12.7	12.5	12.9
35-44 Years	52.1	48.3	55.8	51.8	46.1	57.3	54.1	62.2	46.9
45-54 Years	180.9	188.0	174.2	174.6	175.7	173.5	221.8	273.7	178.2
55-64 Years	447.5	527.3	376.4	428.5	501.4	363.4	590.8	724.8	473.6
65-74 Years	869.8	1134.6	664.7	854.5	1112.1	655.3	993.1	1314.8	741.0
75-84 Years	1308.7	1924.4	944.5	1309.4	1917.5	955.4	1302.5	1983.5	834.0
85 Years and Over	1654.7	2616.5	1237.4	1659.9	2625.9	1244.7	1590.7	2509.3	1146.3
Age-Adjusted Rate[2]	137.9	170.7	114.5	135.1	165.9	113.6	159.2	207.3	121.9

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

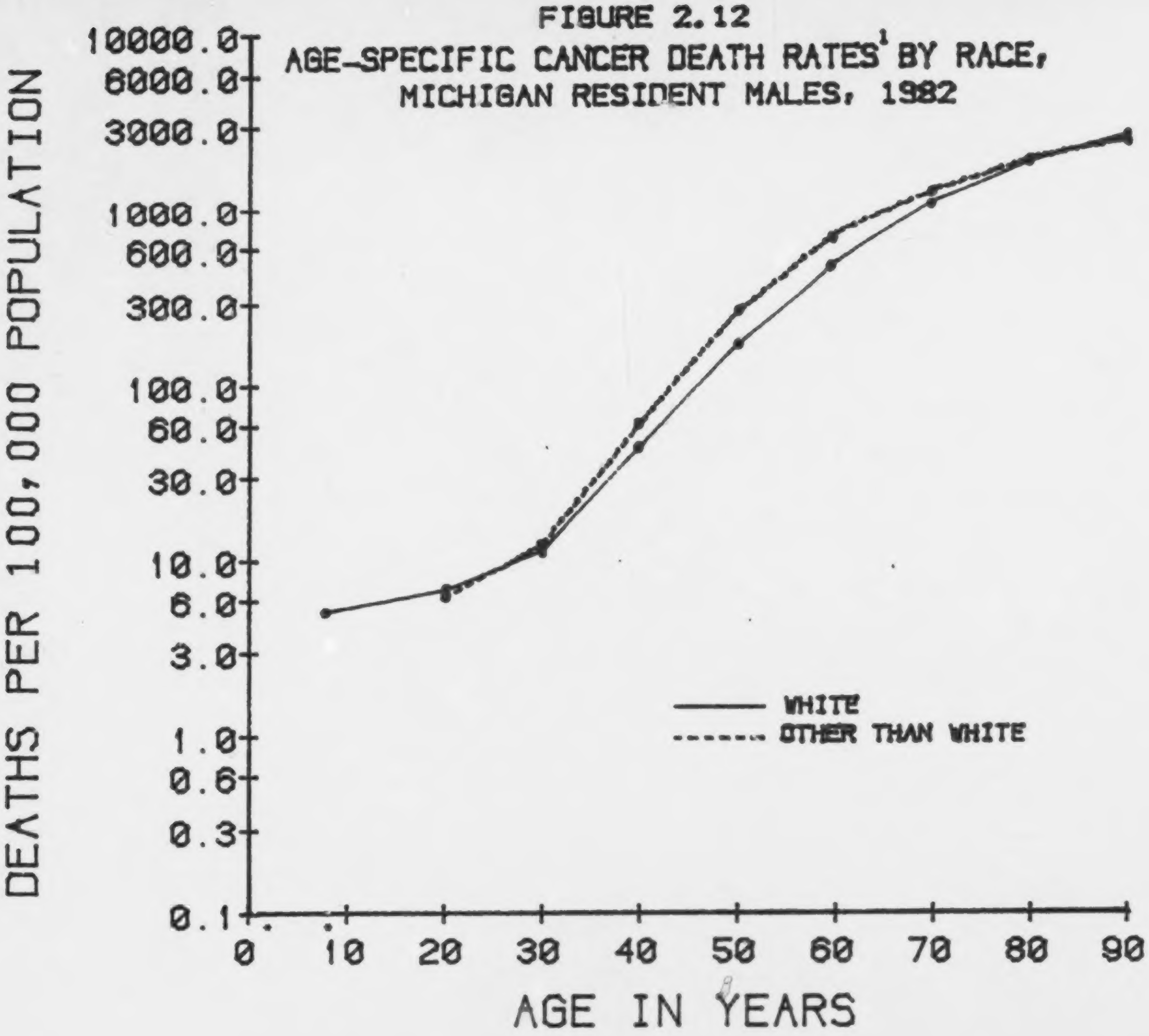
FIGURE 2.11
AGE-SPECIFIC CANCER DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1982



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

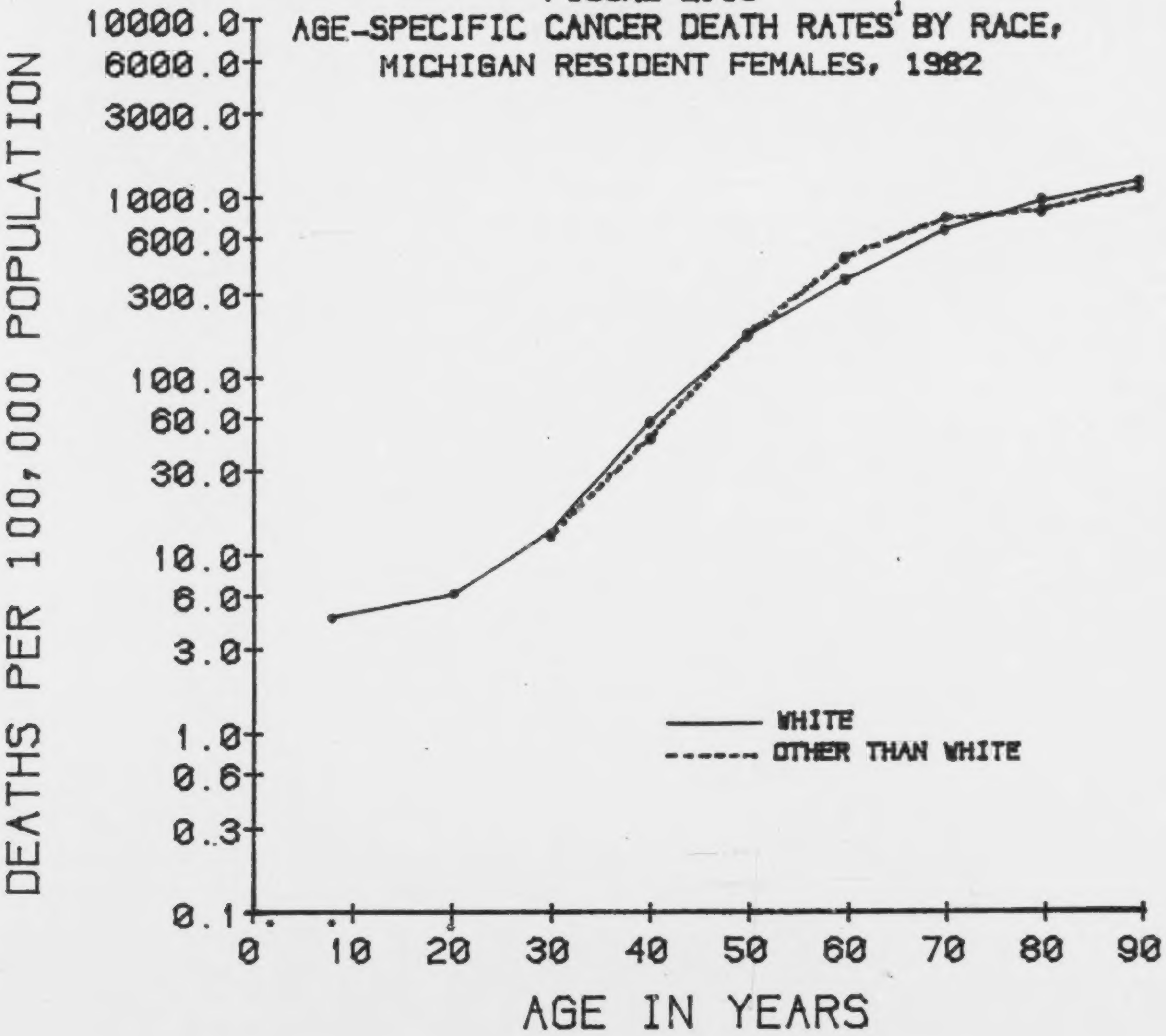
FIGURE 2.12
AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1982



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.13
AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1982



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

than white females, however, was 7.3 percent greater than that for white females.

Among the major cause of death categories, cancer death rates have increased most persistently during the 20th century (Figure 2.14). The rate increased for the eighth consecutive year in 1982 to 179.5, the highest observed in this century. The 1982 rate surpassed by 3.1 percent the previous high rate of 174.1 in 1981. The lowest observed rate for Michigan was 59.3 in 1902. Michigan's cancer death rate was below the national rate from 1900 through 1915. During the period 1916 through 1947 Michigan's rate was generally close to the national rate. Since 1948, the state rate has been consistently below the national cancer death rate. The national cancer death rate in 1982 was an estimated 188.6. This is 5 percent above the state rate.

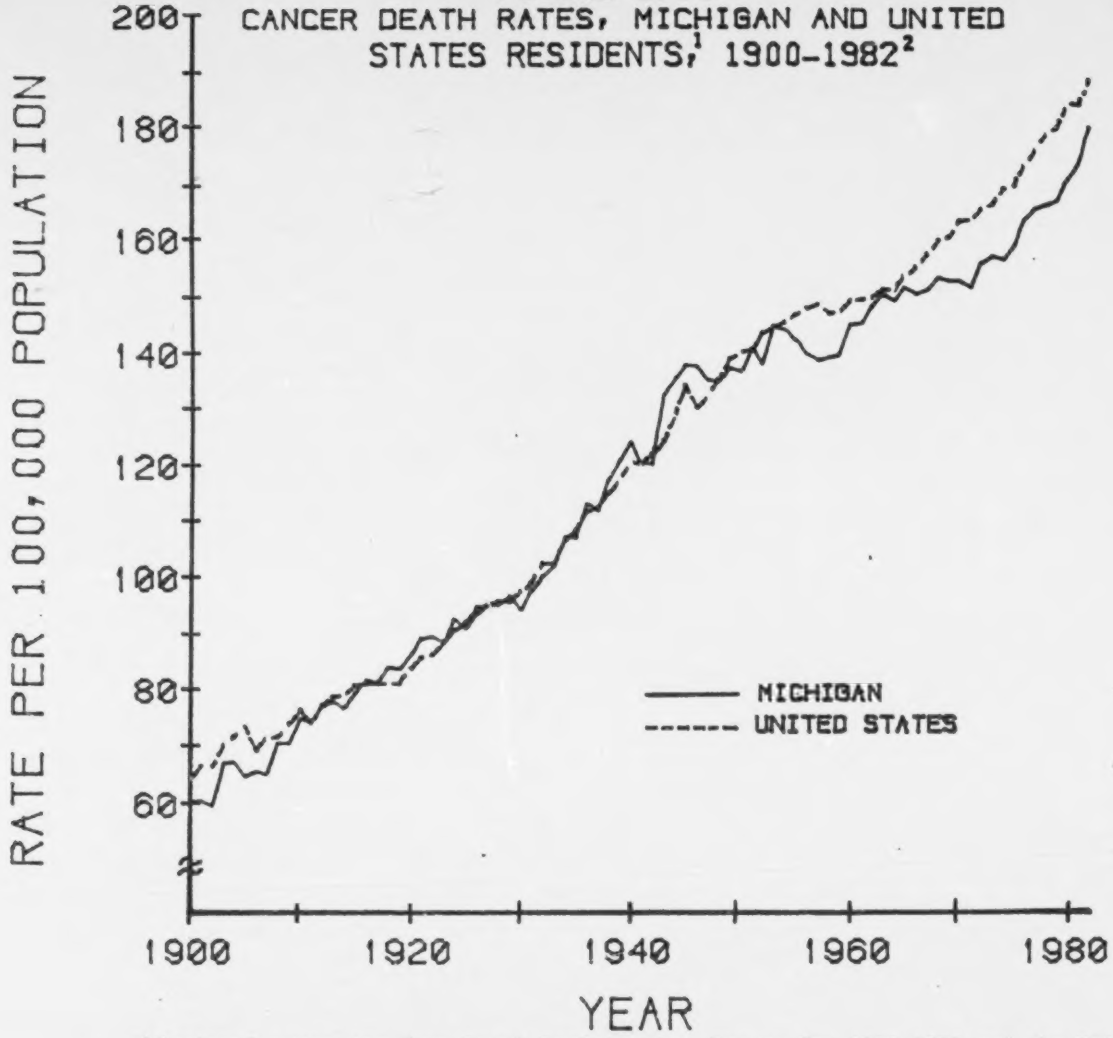
Age-adjusted cancer death rates for the years since 1970 presented in Table 2.15 show a much closer relationship between Michigan and United States mortality patterns than that indicated by crude mortality rates. Michigan's 1970 age-adjusted rate for the total population was 3.7 percent higher than the comparable U.S. rate. Since 1970, Michigan's age-adjusted cancer death rate has remained relatively stable as did the U.S. rate . Michigan's 1982 age-adjusted cancer death rate was 137.9. The provisional figure for 1982 was 133.3 for the United States (see Technical Notes).

Table 2.15 contains a comparison of age-adjusted cancer death rates for white males, white females, other than white males and other than white females. The rates for the other than white groups were consistently higher than those for their white counterparts. Rates for white males and other than white males have increased nationally while the rates in Michigan for these groups have remained quite stable. Age-adjusted rates for white and other than white females were essentially stable both in Michigan and the nation.

The numbers of deaths from cancer for 50 different sites are presented in Table 2.16. Malignant neoplasms of the trachea, bronchus, and lung were the underlying cause of 4,299 deaths, 26.0 percent of all cancer deaths. The second most frequent category of cancer mortality was cancer of the female breast (1,493). Cancer of other and unspecified parts of the colon was the third leading cause of cancer mortality (1,479 deaths). The total number of deaths attributed to colon cancer was 1,666. Malignant neoplasms of the prostate and the pancreas caused 904 and 788 deaths, respectively. There were 28 categories which had at least 100 deaths in 1982.

Based upon 1980 through 1982 death data, the probability of death due to cancer is 0.213 for males and

FIGURE 2.14
CANCER DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1982[2]



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[1] National rates are from Death Registration States for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Cancer death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.15
Age-Adjusted Cancer Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	134.7	164.7	110.1	131.9	160.2	109.1	159.4	206.6	117.1
	1971	131.6	159.0	109.7	128.7	154.9	108.0	157.4	195.8	123.2
	1972	133.8	163.2	111.0	130.8	159.5	108.7	159.4	194.1	129.6
	1973	133.8	163.1	110.7	130.9	159.0	109.0	157.8	199.0	122.7
	1974	131.9	160.6	109.6	129.2	156.5	108.4	153.1	194.9	117.5
	1975	131.7	161.6	108.9	128.5	155.8	108.0	158.4	210.3	114.7
	1976	134.1	165.5	110.2	131.1	160.2	109.3	158.7	209.8	116.1
	1977	134.5	168.8	108.5	131.0	163.1	106.9	163.5	214.9	121.5
	1978	133.7	166.7	109.2	130.7	161.3	108.3	156.8	209.8	114.1
	1979	131.8	165.3	107.0	128.8	160.7	105.4	154.8	200.7	118.0
	1980	134.4	167.8	109.7	131.3	162.7	108.5	157.5	207.6	117.7
	1981	135.0	163.3	114.6	131.3	157.1	113.0	163.4	211.5	125.5
	1982	137.9	170.7	114.5	135.1	165.9	113.6	159.2	207.3	121.9
U.S.	1970	129.9	157.4	108.8	127.8	154.3	107.6	148.3	185.3	117.5
	1971	129.3	157.6	108.0	126.9	154.5	106.2	150.7	186.0	121.7
	1972	130.1	159.2	108.2	127.6	155.7	106.8	151.1	190.7	119.1
	1973	129.7	159.2	107.8	126.9	155.3	105.9	154.7	195.1	122.6
	1974	130.7	161.2	108.1	127.9	157.1	106.5	154.7	198.2	120.2
	1975	129.4	160.1	106.8	126.7	155.8	105.6	152.7	198.8	116.2
	1976	130.6	161.7	107.8	127.5	157.3	106.7	153.5	201.0	116.2
	1977	131.0	162.6	108.0	128.0	158.0	106.5	156.0	204.0	118.7
	1978	131.6	163.7	108.3	128.7	159.0	107.0	155.5	204.6	117.7
	1979	130.8	163.4	107.1	127.8	158.7	105.7	155.1	204.2	117.8
	1980	132.8	165.5	109.2	129.6	160.5	107.7	158.2	209.0	120.2
	1981	131.6[3]	---	---	---	---	---	---	---	---
	1982	133.3[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Provisional.

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1982

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
57	Malignant Neoplasms of Trachea, Bronchus, and Lung	4,299	26.0
63	Malignant Neoplasms of Female Breast	1,493	9.0
48	Malignant Neoplasms of Other and Unspecified Colon	1,479	8.9
78	Malignant Neoplasms of All Other and Unspecified Sites	1,198	7.2
69	Malignant Neoplasms of Prostate	904	5.5
54	Malignant Neoplasms of Pancreas	788	4.8
42	Malignant Neoplasms of Stomach	548	3.3
67	Malignant Neoplasms of Ovary and Other Uterine Adnexa	432	2.6
75	Malignant Neoplasms of Brain	420	2.5
81	Other Malignant Neoplasms of Lymphoid and Histiocytic Tissue	377	2.3
73	Malignant Neoplasms of Kidney and Other and Unspecified Urinary Organs	358	2.2
72	Malignant Neoplasms of Bladder	344	2.1
49	Malignant Neoplasms of Rectum, Rectosigmoid Junction, and Anus	338	2.0
41	Malignant Neoplasms of Esophagus	329	2.0
84	Myeloid Leukemia	298	1.8
82	Multiple Myeloma and Immunoproliferative Neoplasms	238	1.4
66	Malignant Neoplasms of Other Parts of Uterus	214	1.3
79	Lymphosarcoma and Reticulosarcoma	180	1.1
83	Lymphoid Leukemia	174	1.1
61	Melanoma of Skin	171	1.0
53	Malignant Neoplasms of Gallbladder and Extrahepatic Bile Ducts	170	1.0
86	Other and Unspecified Leukemia	158	1.0
65	Malignant Neoplasms of Cervix Uteri	154	0.9
56	Malignant Neoplasms of Larynx	140	0.8
39	Malignant Neoplasms of Pharynx	128	0.8
60	Malignant Neoplasms of Connective and Other Soft Tissue	118	0.7
47	Malignant Neoplasms of Cecum, Appendix, and Ascending Colon	102	0.6
55	Malignant Neoplasms of Retroperitoneum, Peritoneum, and Other and Ill-Defined Sites within the Digestive Organs and Peritoneum	102	0.6
40	Malignant Neoplasms of Other and Ill-Defined Sites within Lip, Oral Cavity, and Pharynx	98	0.6
52	Malignant Neoplasms of Liver not Specified as Primary or Secondary	96	0.6
46	Malignant Neoplasms of Sigmoid Colon	85	0.5
80	Hodgkin's Disease	85	0.5
50	Malignant Neoplasms of Liver, Primary	79	0.5
38	Malignant Neoplasms of Tongue	77	0.5
62	Other Malignant Neoplasms of Skin	56	0.3

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1982 (continued)

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
77	Malignant Neoplasms of Thyroid Gland and Other Endocrine Glands and Related Structures	47	0.3
58	Malignant Neoplasms of All Other and Ill-Defined Sites within the Respiratory System and Intrathoracic Organs	36	0.2
68	Malignant Neoplasms of Other and Unspecified Female Genital Organs	36	0.2
43	Malignant Neoplasms of Small Intestine, including Duodenum	36	0.2
59	Malignant Neoplasms of Bone and Articular Cartilage	31	0.2
51	Malignant Neoplasms of Intrahepatic Bile Ducts	30	0.2
70	Malignant Neoplasms of Testis	24	0.1
44	Malignant Neoplasms of Hepatic and Splenic Flexures and Transverse Colon	22	0.1
85	Monocytic Leukemia	18	0.1
45	Malignant Neoplasms of Descending Colon	15	0.1
76	Malignant Neoplasms of Other and Unspecified Parts of Nervous System	12	0.1
74	Malignant Neoplasms of Eye	10	0.1
71	Malignant Neoplasms of Penis and Other Male Genital Organs	9	0.1
64	Malignant Neoplasms of Male Breast	7	0.0
37	Malignant Neoplasms of Lip	3	0.0
	Total	16,566	100.0

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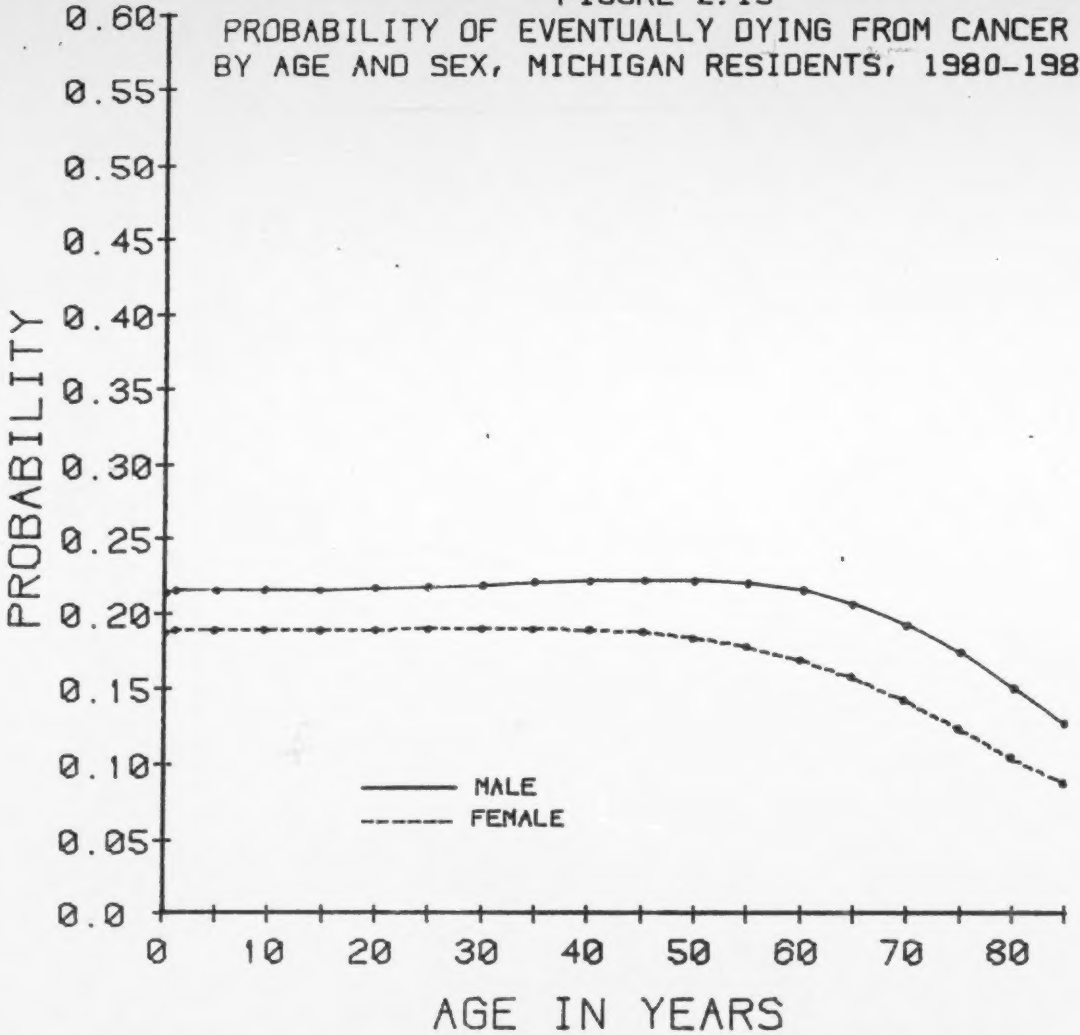
[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

0.187 for females at birth (Figure 2.15). The probability of eventually dying from cancer is greater for males than for females at all ages. The probability for males rises slowly to a peak of 0.223 by age 45 then declines to 0.127 at age 85. Probabilities for females display little change from birth to age 45, then diminish to 0.086 by age 85. This decreasing probability beyond age 45, noting the high cancer mortality rates of older age (Figure 2.11), indicates that age-specific death rates due to competing causes of death increase relatively faster with advancing age.

FIGURE 2.15
PROBABILITY OF EVENTUALLY DYING FROM CANCER
BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CEREBROVASCULAR DISEASE

Deaths due to cerebrovascular disease (stroke) numbered 5,839 in 1982 or 7.7 percent of the 75,536 total Michigan resident deaths. This is 282 fewer stroke deaths than were observed in 1981. Of the total in 1982, 57.6 percent were to females.

The median age at death from stroke was 79 years (Table 2.17). The median age for females was 81 years, 5 years higher than that for males. Deaths for white persons due to cerebrovascular disease displayed median ages several years higher than those for other than white persons. The median age was 69 years for other than white males and 77 years for white males. The median was 73 years for other than white females. This was 9 years less than that for white females (82 years).

The cerebrovascular disease death rate was 63.3 in 1982. The rate for females (71.1) was much higher than the rate for males (55.0). The age-specific death rates recorded in Table 2.18 and displayed in Figure 2.16 indicate that rates for males and females were similar below age 55. The rates for both sexes increased markedly in the older age groups. Rates for males were above those of females from age 55 through 84. Among persons 85 years of age or older the rate for females was above that for males. The crude death rate for females exceeded that for males because of the larger proportion of women in the high risk older age groups. The age-adjusted rate of 42.2 for males was 25 percent higher than the age-adjusted rate of 33.7 for females.

Cerebrovascular disease death rates by age and race from Table 2.18 are graphically displayed in Figures 2.17 and 2.18. Rates for other than white males and females were higher than comparable rates for white persons in all age groups below age 85 with sufficient events to calculate rates. The relative differentials progressively decreased in the older age groups. Rates for white persons were considerably higher than those for other than white persons beyond age 84. Although the crude rates for white males and females were, respectively, 18 percent and 50 percent higher than rates for other than white persons, age-adjusted rates indicate an opposite relationship. The cerebrovascular disease age-adjusted death rate for other than white males was 40 percent higher than that for white males, while for other than white females the age-adjusted rate was 44 percent higher than that for white females.

The historic pattern of cerebrovascular disease death rates has been one of strong variation (Figure 2.19). During the time period 1900-1949, the rates in Michigan ranged from a low of 83.9 in 1902 to a high of 110.0 eight

Table 2.17
Deaths Due to Cerebrovascular Disease by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	6	1	5	4	1	3	2	-	2	-	-	-
1-4	1	-	1	-	-	-	1	-	1	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	2	-	2	2	-	2	-	-	-	-	-	-
15-19	4	1	3	1	1	-	3	-	3	-	-	-
20-24	7	4	3	5	3	2	2	1	1	-	-	-
25-29	32	19	13	20	13	7	11	6	5	1	-	1
30-34	22	10	12	11	5	6	11	5	6	-	-	-
35-39	31	18	13	23	11	12	8	7	1	-	-	-
40-44	50	24	26	32	15	17	18	9	9	-	-	-
45-49	67	37	30	45	26	19	22	11	11	-	-	-
50-54	121	64	57	85	43	42	36	21	15	-	-	-
55-59	206	120	86	153	92	61	53	28	25	-	-	-
60-64	299	150	149	234	117	117	65	33	32	-	-	-
65-69	529	302	227	439	252	187	90	50	40	-	-	-
70-74	691	362	329	600	320	280	91	42	49	-	-	-
75-79	958	442	516	844	396	448	114	46	68	-	-	-
80-84	1094	416	678	998	369	629	94	46	48	2	1	1
85-89	994	315	679	951	303	648	43	12	31	-	-	-
90+	725	189	536	677	174	503	48	15	33	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	5839	2474	3365	5124	2141	2983	712	332	380	3	1	2
Median Age At Last Birthday	79	76	81	80	77	82	71	69	73	*	*	*

Table 2.18
Cerebrovascular Disease Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	63.3	55.0	71.1	65.9	56.4	75.1	49.1	47.9	50.2
Under 1 Year	4.3	*	7.3	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.6	0.5	0.7	0.4	*	*	1.7	*	*
25-34 Years	3.4	3.7	3.1	2.4	2.7	2.1	8.4	9.1	7.9
35-44 Years	7.9	8.4	7.5	6.3	6.0	6.5	18.0	23.7	13.0
45-54 Years	20.9	23.1	18.8	16.7	18.0	15.3	48.4	58.4	39.9
55-64 Years	57.4	65.1	50.5	49.8	57.0	43.3	114.7	127.0	103.8
65-74 Years	214.0	266.9	173.1	204.9	258.6	163.3	288.1	333.2	252.7
75-84 Years	732.2	823.5	678.1	726.9	821.0	672.1	782.3	844.8	739.2
85 Years and Over	1978.0	1916.7	2004.7	2027.3	1975.6	2049.5	1378.6	1254.6	1438.5
Age-Adjusted Rate[2]	37.4	42.2	33.7	35.4	40.2	31.9	50.5	56.1	45.9

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

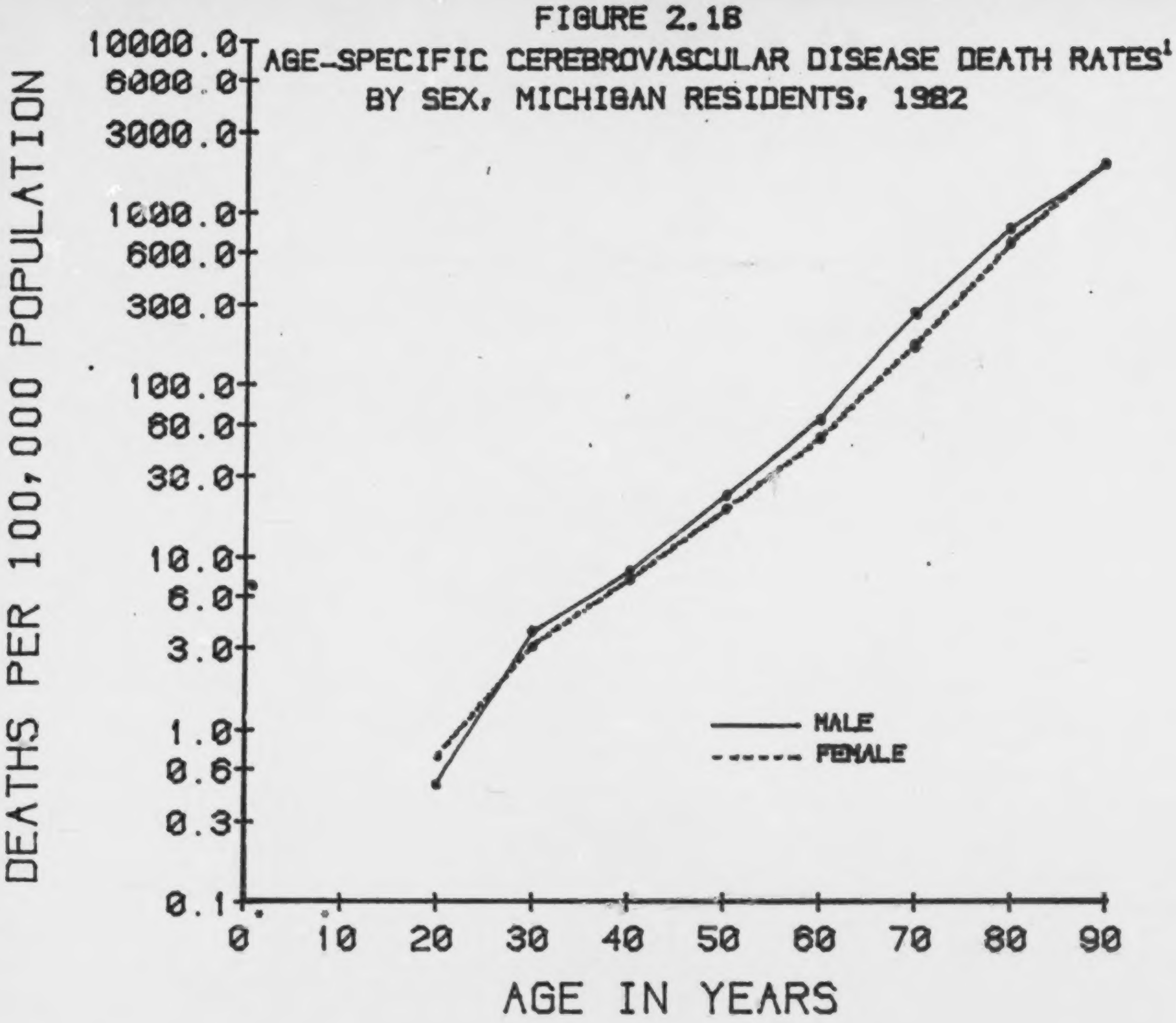

FIGURE 2.18
AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1982

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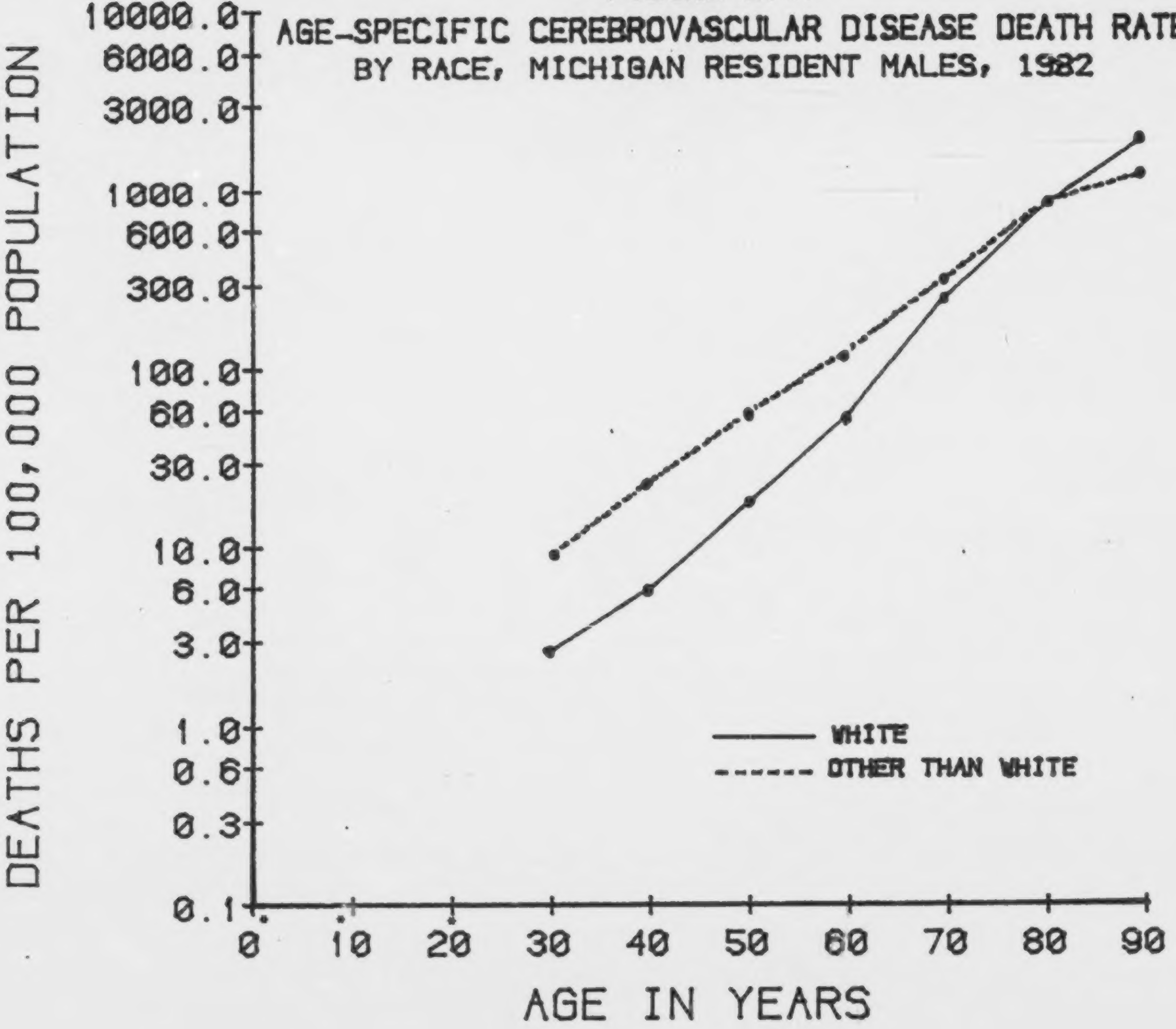
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.17

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1982

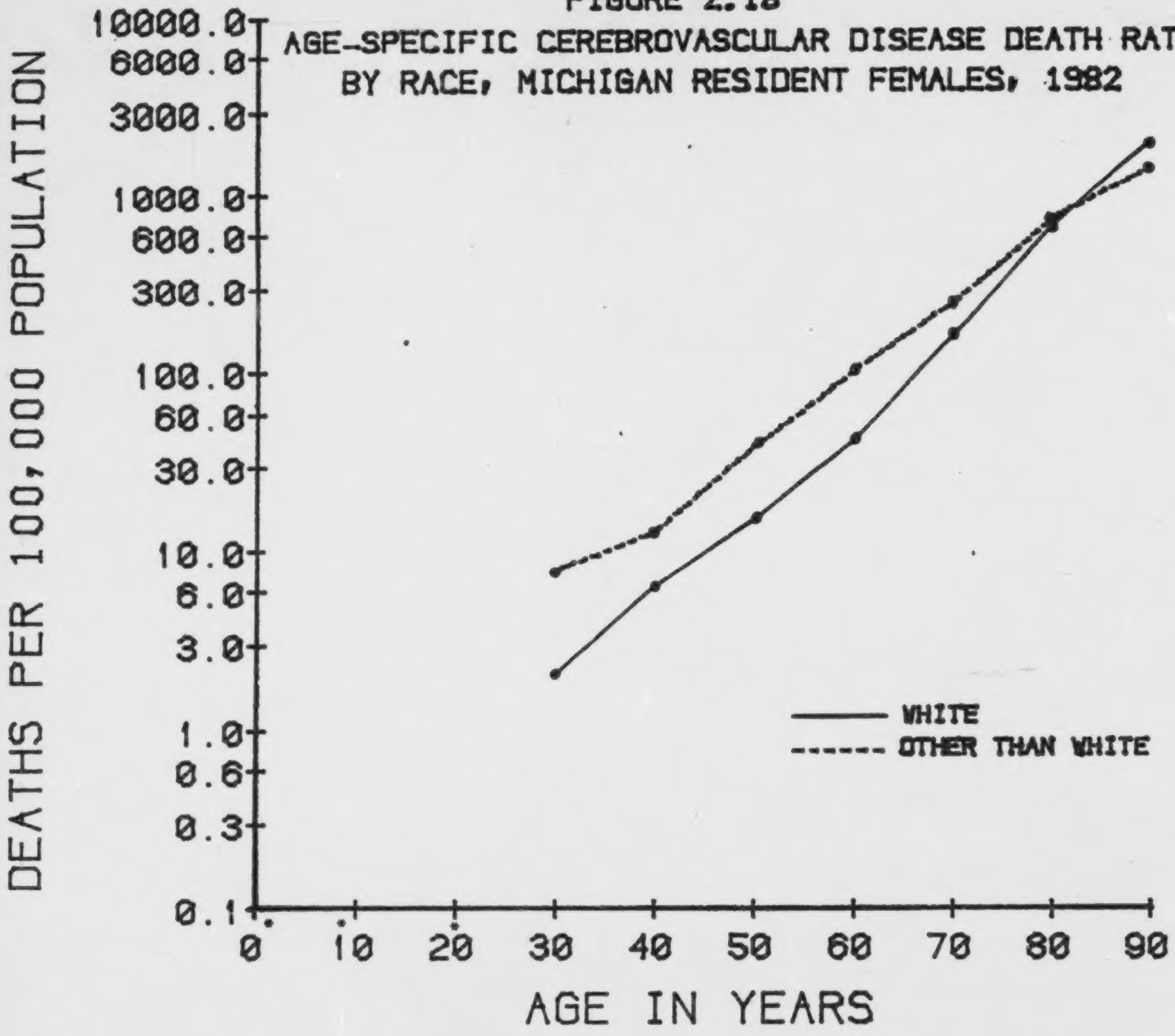


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.18

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1982

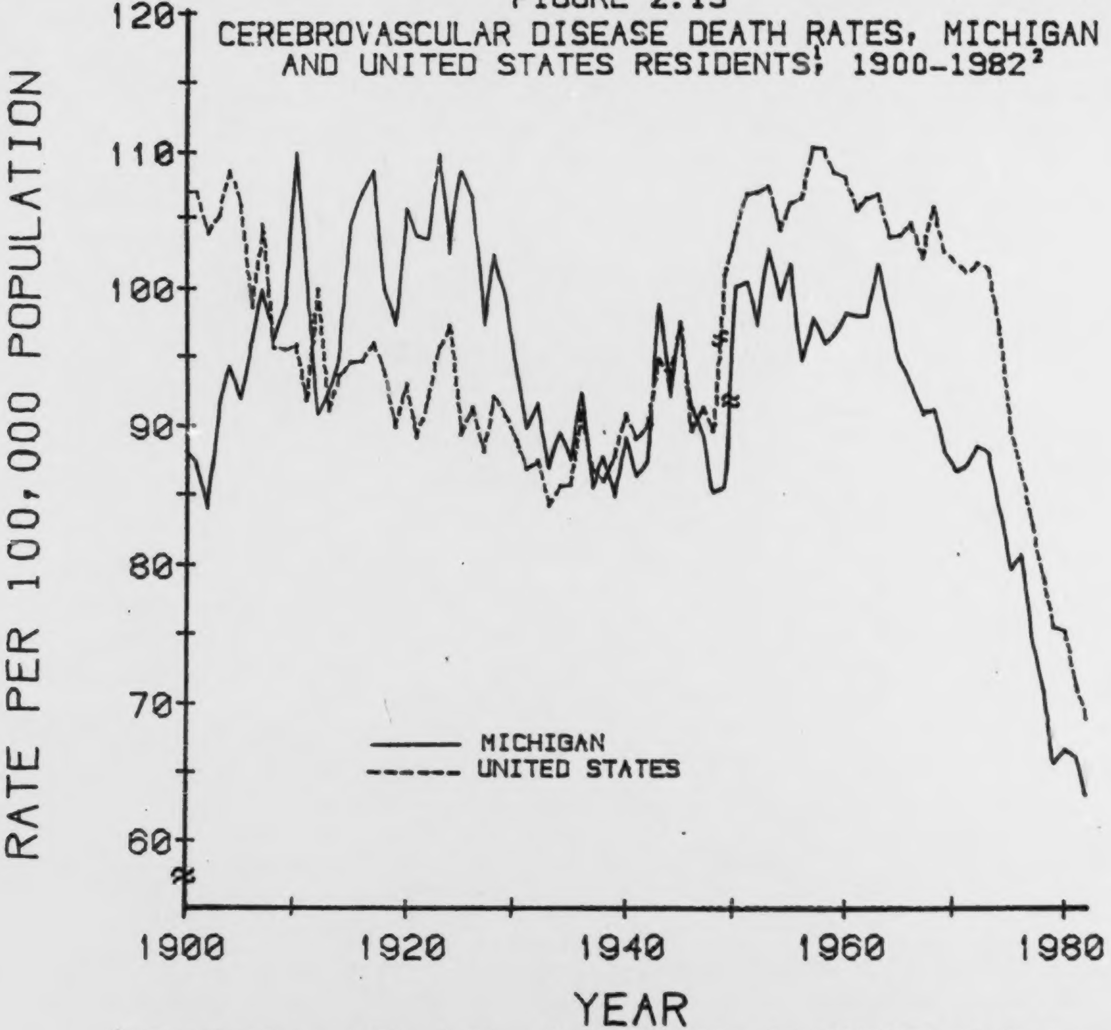


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.19

CEREBROVASCULAR DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1982[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] The comparability of cerebrovascular disease death rates from the 5th revision of ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be 1.16. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cerebrovascular disease death rates through the 6th, 7th, 8th and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates can be made but detailed study requires special consideration. See Technical Notes

years later. The national high and low rates for the years 1900-1948 were, respectively, 108.6 in 1904 and 84.1 in 1933. Rates for Michigan were below national rates from 1900 through 1907 but were generally, and sometimes markedly, higher from 1908 through 1938. Michigan and national rates were very similar over the next eight years, whereupon the Michigan rate slipped below the national rate and has so remained since 1947.

The 6th revision to ICD cause of death coding was adopted in the year 1949 nationally and in 1950 in Michigan. This revision resulted in a lack of direct comparability between cerebrovascular disease death rates prior to these dates and those after adoption. Since the significant change in coding procedures, the cerebrovascular disease death rate in Michigan has ranged from a high of 102.8 in 1953 to a low of 63.3 in 1982. Recent rates over the last eighteen years have shown a clear downward tendency both nationally and in Michigan. The rate of 63.3 for Michigan in 1982 was 38 percent below the rate of 1953. In 1982 the Michigan rate was 8 percent below the provisional United States rate of 68.8.

Age-adjusted rates for cerebrovascular disease deaths by race and sex are presented in Table 2.19. These rates have declined by approximately 40 percent since 1970 for each sex-race group in Michigan. Rates for other than white persons, however, remained substantially above rates for white persons throughout the period. Rates for the United States showed a similar pattern of decline. However, while Michigan and national rates were quite similar for white males and females, the state age-adjusted rates for other than white males and females were lower than comparable national rates (see Technical Notes).

Acute but ill-defined cerebrovascular disease was most frequently given as the type of cerebrovascular disease causing death (2,805 deaths). Second in frequency was cerebral thrombosis and unspecified occlusion of cerebral arteries which caused 1,235 deaths in 1982 (Table 2.20). These two cause of death categories comprised 69.2 percent of all stroke deaths. Intracerebral and other intracranial hemorrhage caused 707 stroke deaths.

Based upon the mortality experience of 1980 through 1982, at birth a Michigan male faces a 0.070 chance of dying from cerebrovascular disease while the probability for a female at birth is 0.114. For both sexes the probability of eventual death due to this cause increases with advancing age. At all ages females are more likely to eventually die from this cause than are males (Figure 2.20). This results primarily from the higher risks from competing causes for males. At age 60 probabilities for males start rising appreciably, reaching 0.106 by age 85. Data for females

Table 2.19
Age-Adjusted Cerebrovascular Disease Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	64.7	70.8	59.9	61.5	67.9	56.5	93.9	95.4	92.2
	1971	63.7	72.5	56.7	61.0	70.5	53.5	86.3	88.5	84.4
	1972	63.3	69.5	58.2	60.7	66.7	55.6	83.8	90.7	77.3
	1973	61.4	67.4	56.4	59.0	65.1	54.0	79.7	84.5	75.7
	1974	57.8	64.7	52.2	55.6	62.6	50.1	73.0	79.9	66.8
	1975	53.9	60.1	49.0	52.2	58.1	47.7	65.6	74.9	57.7
	1976	53.1	58.0	49.3	51.3	56.4	47.4	65.4	69.7	61.7
	1977	48.4	54.0	44.0	46.6	52.1	42.3	62.1	69.5	56.4
	1978	45.2	49.3	42.0	43.1	47.5	39.7	60.3	61.3	59.0
	1979	40.9	46.3	36.8	38.8	44.2	34.7	56.3	61.5	51.8
	1980	40.6	44.9	37.4	38.3	42.6	35.1	57.1	61.3	53.6
	1981	39.8	42.7	37.7	37.5	40.5	35.3	55.4	57.8	53.1
	1982	37.4	42.2	33.7	35.4	40.2	31.9	50.5	56.1	45.9
U.S.	1970	66.3	73.2	60.8	61.8	68.8	56.2	107.0	113.5	101.4
	1971	65.0	72.7	59.1	60.9	68.7	54.9	102.0	109.4	95.8
	1972	64.6	72.3	58.6	60.6	68.4	54.5	100.6	107.6	94.8
	1973	63.1	69.9	57.9	59.0	65.8	53.9	98.6	106.4	92.3
	1974	59.2	65.9	54.1	55.7	62.4	50.8	89.7	98.0	83.0
	1975	53.7	60.0	49.0	50.6	56.7	46.1	80.8	88.9	74.2
	1976	50.6	56.1	46.5	47.6	53.0	43.6	76.2	84.1	69.9
	1977	47.3	52.7	43.3	44.4	49.7	40.6	71.7	79.3	65.6
	1978	44.4	49.1	40.8	41.6	46.0	38.4	67.6	76.1	60.9
	1979	41.6	45.9	38.3	38.9	42.9	35.9	63.6	71.8	57.1
	1980	40.8	44.9	37.6	38.0	41.9	35.2	62.9	70.5	57.0
	1981	38.3[3]	---	---	---	---	---	---	---	---
	1982	36.1[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

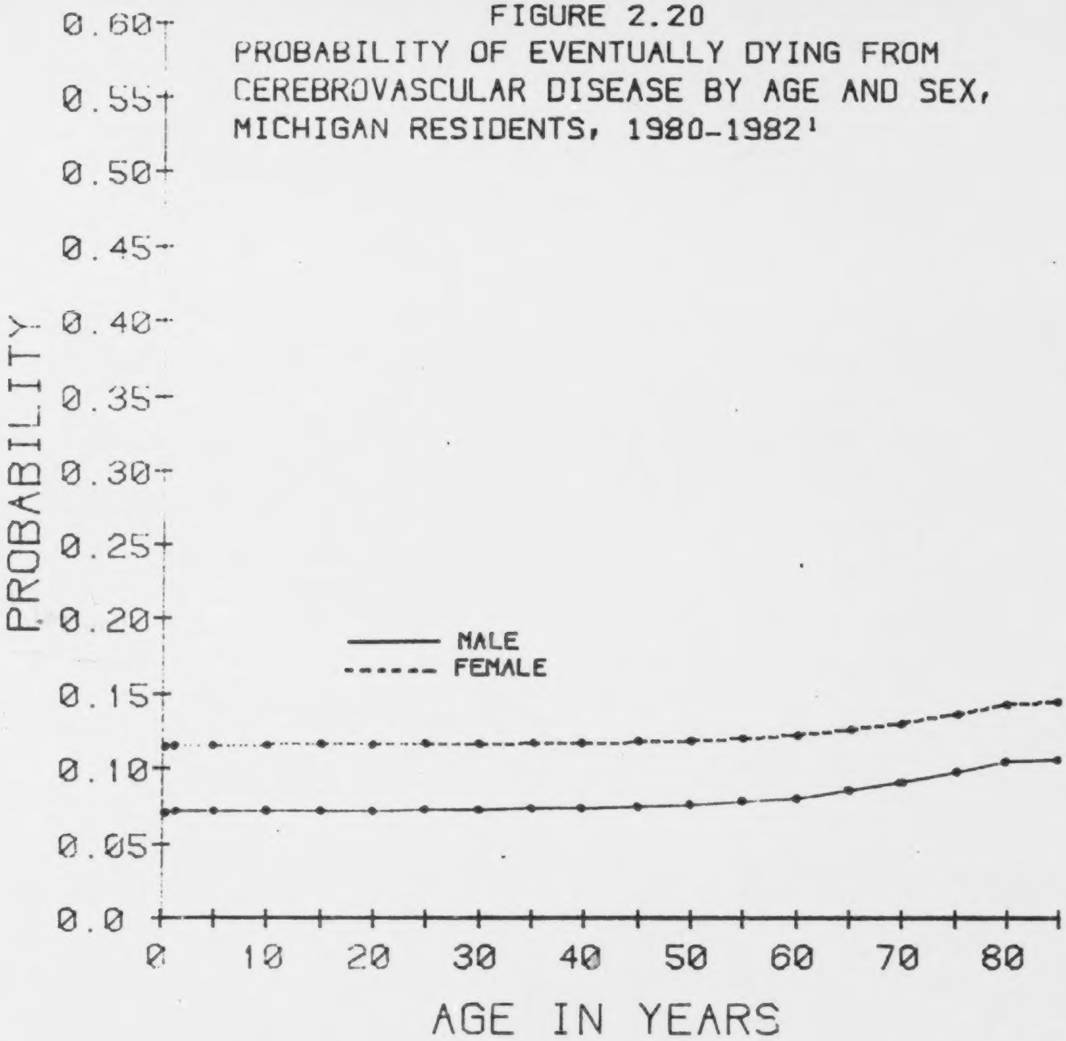
[3] Provisional.

Table 2.20
Deaths Due to Cerebrovascular Diseases by Specific Cause, Michigan Residents, 1982

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
154	Acute but Ill-Defined Cerebrovascular Disease . .	2,805	48.0
152	Cerebral Thrombosis and Unspecified Occlusion of Cerebral Arteries	1,235	21.2
155	Other and Late Effects of Cerebrovascular Diseases	751	12.9
150	Intracerebral and Other Intracranial Hemorrhage .	707	12.1
149	Subarachnoid Hemorrhage	237	4.1
151	Occlusion and Stenosis of Precerebral Arteries . .	71	1.2
153	Cerebral Embolism	33	0.6
	Total	5,839	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.20
PROBABILITY OF EVENTUALLY DYING FROM CEREBROVASCULAR DISEASE BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

reveal a similar tendency, though the increase is more moderate. The peak probability for females is 0.146 at age 85.

ACCIDENTS

About 4.1 percent of all Michigan resident deaths in 1982 were attributed to accidents. The total of 3,113 accidental deaths is 277 fewer than in 1981. In 1982 68.6 percent of the total accidental deaths were to males.

The median age at death among accident victims was 36 years (Table 2.21). The median age among males was 32, 18 years lower than the 50 year median for females. This differential is predominantly traceable to the age at death distribution of white females. The median age of accidental death for white males was 32 years compared to 33 years for other than white males. For white females who died from accidents the median of 52 years was 21 years higher than that for their other than white counterparts.

Accidental deaths among white males were especially concentrated in the 15-19 year and 20-24 year age ranges. These two age groups accounted for 25.5 percent of accidental deaths for white males compared to less than 17 percent for all other race/sex categories.

The crude death rate from accidents for males was 2.5 times that for females. Age-specific accident death rates for males were greater than those for females in all age groups. The differentials between rates for males and females were greatest between ages 15 and 44. In the 25-34 year age group, the rate for males was 4.1 times that for females. The age-adjusted death rate for males was 2.6 times that for females (Table 2.22).

Accident mortality rates by sex contained in Table 2.22 are displayed graphically in Figure 2.21. Although age-specific rates for males are generally much higher than those for females, the patterns of change are quite similar. Mortality rates for children between 1 and 14 years of age were somewhat lower than those for infants under one year. The rates then rose sharply for both sexes in the 15-24 year age group. From this initial peak the rates for both groups declined somewhat, remained fairly constant through age 54, and then increased continuously beyond that age.

Age-specific accident death rates for white and other than white persons are graphically displayed in Figures 2.22 and 2.23. Rates for white males were higher than those for other than white males only in the 15-24, 25-34 and the 65-74 year age groups. The largest relative differential in rates for white and other white females was in the under 1 year age group where the rate for other than white females was 3.4 times the rate for white females. While the crude accident death rates for white persons were higher than those for other than white persons the age-adjusted rates were similar (Table 2.22).

Table 2.21
Deaths Due to Accidents by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	40	25	15	24	16	8	16	9	7	-	-	-
1-4	108	64	44	71	43	28	37	21	16	-	-	-
5-9	87	56	31	66	41	25	21	15	6	-	-	-
10-14	98	71	27	79	56	23	18	15	3	1	-	1
15-19	305	229	76	280	215	65	24	13	11	1	1	-
20-24	355	275	80	324	253	71	28	19	9	3	3	-
25-29	307	247	60	264	215	49	43	32	11	-	-	-
30-34	215	171	44	176	140	36	38	30	8	1	1	-
35-39	162	122	40	135	101	34	26	20	6	1	1	-
40-44	123	93	30	95	71	24	28	22	6	-	-	-
45-49	132	95	37	113	82	31	19	13	6	-	-	-
50-54	165	108	57	133	85	48	30	22	8	2	1	1
55-59	159	112	47	135	93	42	24	19	5	-	-	-
60-64	133	88	45	117	76	41	16	12	4	-	-	-
65-69	120	75	45	103	61	42	17	14	3	-	-	-
70-74	120	67	53	103	56	47	16	11	5	1	-	1
75-79	145	86	59	133	30	53	12	6	6	-	-	-
80-84	129	70	59	124	68	56	5	2	3	-	-	-
85-89	127	51	76	121	49	72	6	2	4	-	-	-
90+	83	30	53	79	30	49	4	-	4	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	3113	2135	978	2675	1831	844	428	297	131	10	7	3
Median Age At Last Birthday	36	32	50	37	32	52	33	33	31	*	*	*

Table 2.22
Accident Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	33.7	47.5	20.7	34.5	48.4	21.3	29.5	42.8	17.4
Under 1 Year	28.5	34.9	21.8	21.4	27.9	14.6	56.7	63.7	49.7
1-14 Years	15.2	19.3	10.8	14.2	17.9	10.3	19.0	25.0	12.9
15-24 Years	36.2	55.1	17.2	39.8	61.2	18.0	17.6	22.3	13.2
25-34 Years	32.7	53.1	12.9	33.0	53.4	12.7	31.1	51.5	13.6
35-44 Years	27.9	42.9	13.5	26.3	39.9	13.1	37.4	62.2	15.6
45-54 Years	33.0	46.4	20.3	31.8	43.9	20.1	40.9	63.9	21.5
55-64 Years	33.2	48.2	19.8	32.4	46.1	20.2	38.9	64.6	16.4
65-74 Years	42.1	57.1	30.5	40.8	52.9	31.5	52.5	90.6	22.7
75-84 Years	97.8	149.7	67.0	101.4	158.6	68.0	63.6	73.5	56.9
85 Years and Over	241.6	308.0	212.8	249.1	327.2	215.5	151.5	*	179.8
Age-Adjusted Rate[2]	30.7	45.2	17.2	30.7	45.0	17.1	30.8	46.5	17.0

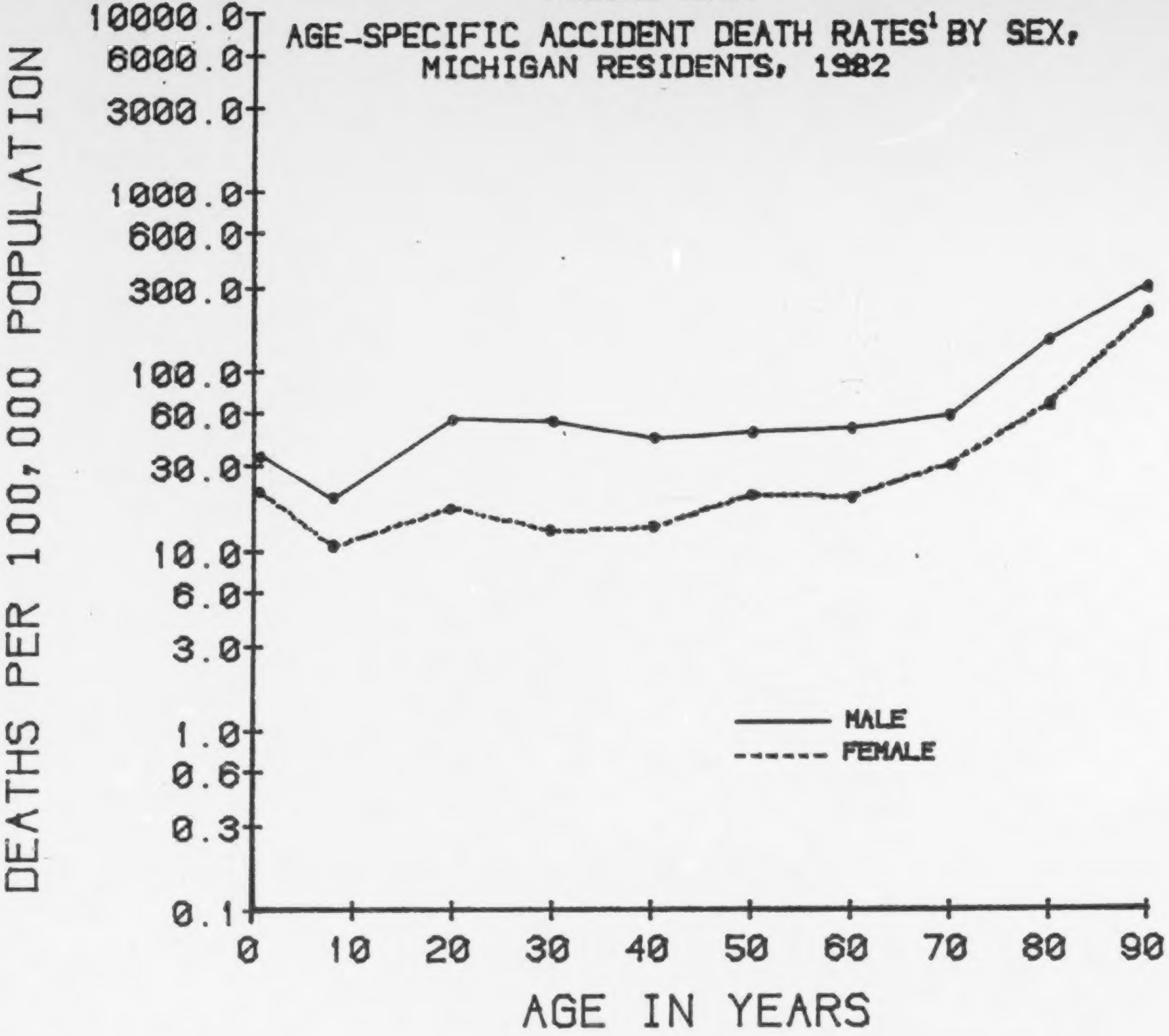
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

FIGURE 2.21

AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1982



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

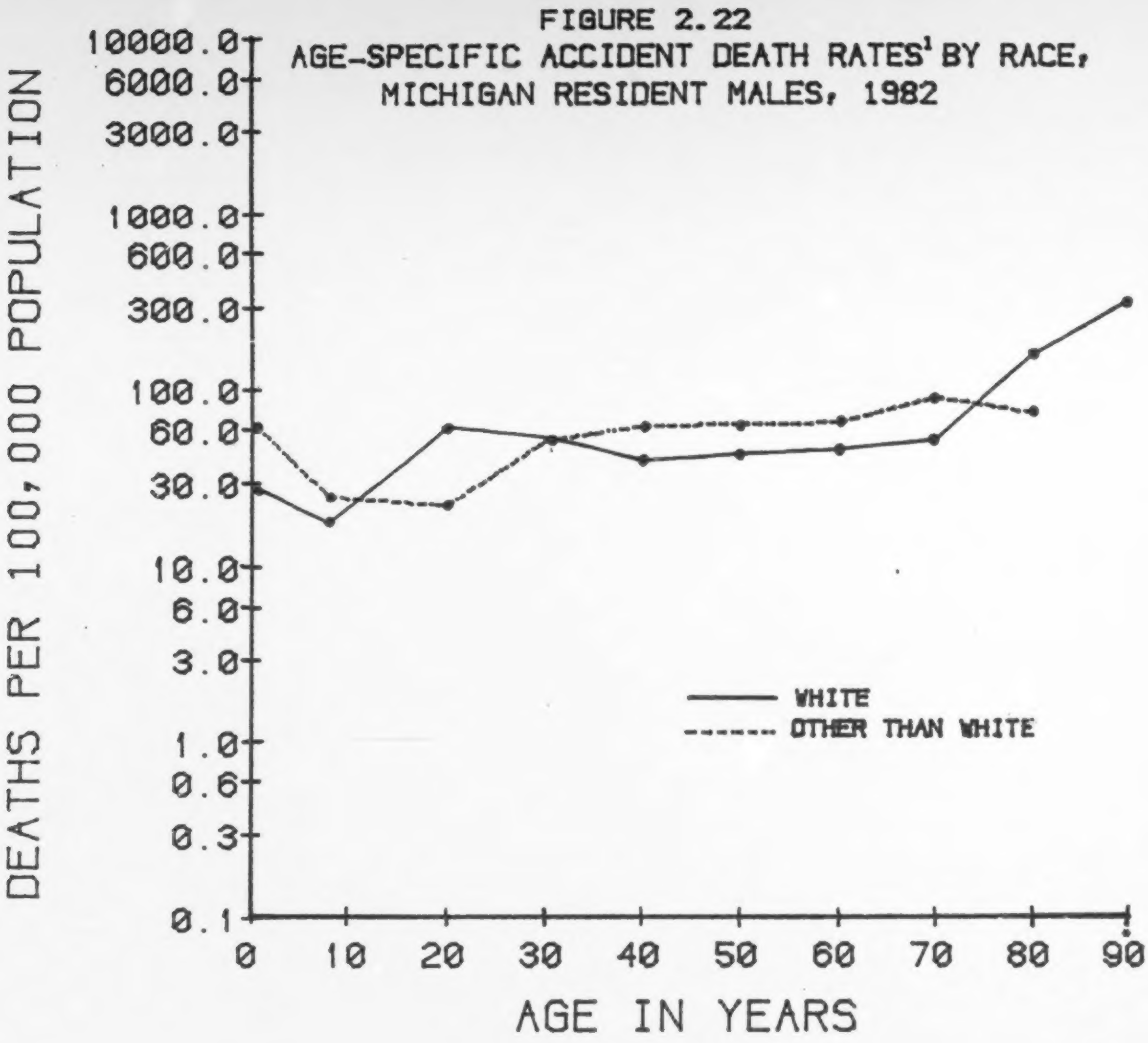

FIGURE 2.22
AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1982

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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

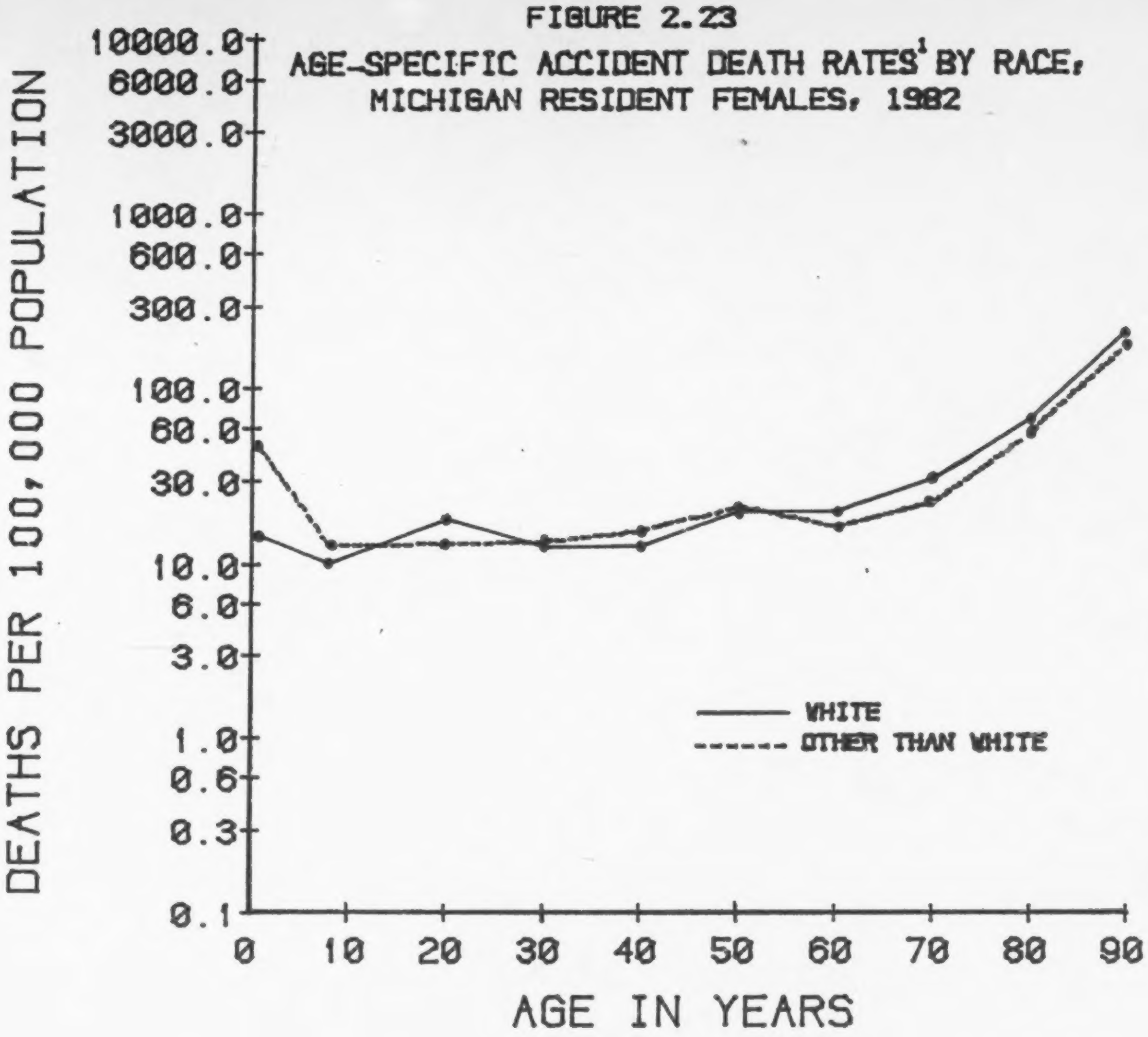

FIGURE 2.23

AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1982

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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

Michigan's accident death rate in 1900 was 71.9. The highest rate observed in this century was 103.1 in 1936, and the rate of 33.7 in 1982 is the lowest rate of the century. In eight of the last nine years the accident death rate has fallen or remained the same. The rate in 1982 was 7.9 percent lower than that of 1981.

The highest national accident death rate was 101.8 in 1907. The lowest national rate of the century is the provisional rate of 40.8 for 1982. Michigan's rates have been below national rates fairly consistently since 1900. The last time Michigan's rate was above that of the United States was in 1964. The accident death rate for Michigan in 1982 was 17.4 percent below the provisional rate of 40.8 for the nation (Figure 2.24).

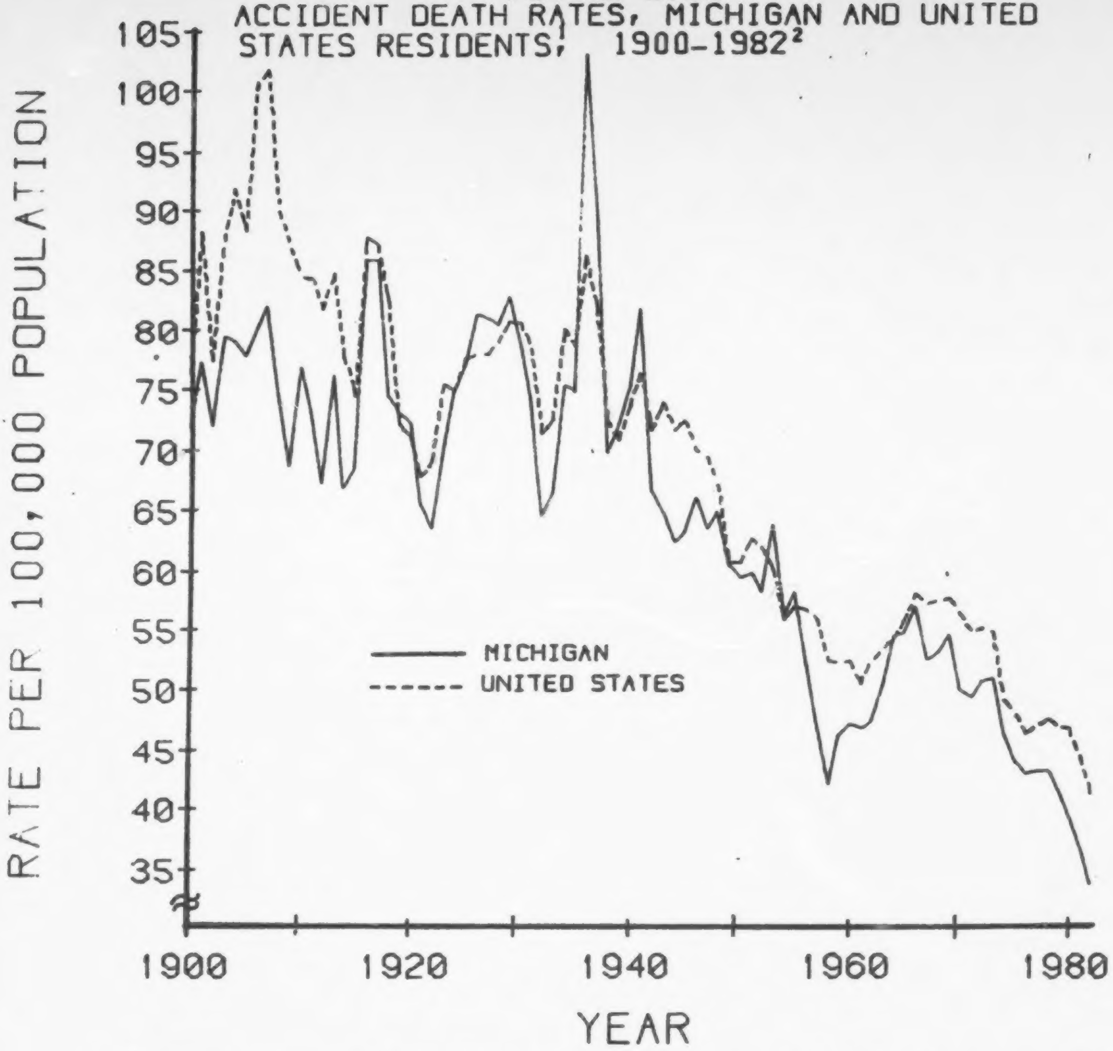
Michigan's age-adjusted death rates for accidental deaths have also been below the comparable national rates since 1970 (Table 2.23). Between 1970 and 1982 Michigan's age-adjusted rate declined by 36.8 percent. Between 1970 and 1982 the national age-adjusted rate declined by 30.9 percent (see Technical Notes). Michigan's rate was 17 percent below the national rate in 1982. The age-adjusted rates by race and sex declined for each population subgroup during this period. The most significant declines occurred in the rates for other than white males and females. Each declined by 44.6 percent. In Michigan the rate for all other than white persons was 18.1 percent higher than that for white persons in 1970 but was virtually equal to the rate for whites in 1982. This differential declined nationally from 42.7 percent higher in 1970 to 19.3 percent higher in 1980.

Motor vehicle accidents involving collision with another motor vehicle was the largest single cause of accidental death in 1982, resulting in 615 deaths (Table 2.24). Deaths from all types of motor vehicle accidents accounted for 1,555 deaths in 1982. Accidental falls of all types resulted in 428 deaths. Accidents caused by fires and flames, accidental drownings, and accidental poisonings caused 200, 163, and 176 deaths, respectively. Choking on food or other objects was the cause of 145 deaths, while accidents caused by handguns and other firearms resulted in the deaths of 34 Michigan residents. Medical misadventures and water transport accidents each accounted for 41 deaths in 1982 (Table 2.5).

Deaths from motor vehicle accidents accounted for 50.0 percent of all accidental deaths in 1982. This proportion of accident deaths varied by age group, from a low of 24.6 percent of accident deaths for persons 65 years of age or older to 74.5 percent for persons 15-24 years of age (Table 2.25). Among children under 15 years the most frequent causes of accidental death were motor vehicle accidents,

FIGURE 2.24

ACCIDENT DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1982[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Accidental death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.23
Age-Adjusted Accident Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	48.6	71.3	27.4	47.5	69.6	26.8	56.1	83.9	30.7
	1971	47.7	69.9	26.8	46.8	68.3	26.5	54.1	83.1	27.8
	1972	48.7	72.9	25.9	48.4	72.2	25.9	50.9	78.8	25.6
	1973	48.9	72.4	26.6	48.2	71.2	26.2	53.1	81.1	27.7
	1974	43.8	65.5	23.2	43.5	64.5	23.4	46.2	73.5	21.6
	1975	41.5	61.7	22.4	41.3	61.4	22.3	42.9	65.1	23.0
	1976	40.0	58.7	22.4	40.3	58.9	22.7	38.1	58.8	19.9
	1977	40.4	59.1	22.8	40.6	59.2	22.9	39.4	59.6	21.5
	1978	40.3	59.5	22.2	40.6	59.9	22.1	40.0	59.7	23.0
	1979	38.4	56.2	21.8	38.7	56.3	22.1	37.5	57.9	19.7
	1980	36.4	53.3	20.6	36.6	52.8	21.4	35.8	58.6	16.0
	1981	33.6	50.6	17.7	34.1	51.1	18.0	31.6	48.9	16.6
	1982	30.7	45.2	17.2	30.7	45.0	17.1	30.8	46.5	17.0
U.S.	1970	53.7	80.7	28.2	51.0	76.2	27.2	72.8	115.7	35.1
	1971	51.7	77.0	27.9	49.2	72.9	26.8	70.1	109.8	35.3
	1972	51.7	77.1	27.9	49.5	73.1	27.0	68.4	108.6	33.2
	1973	51.3	76.8	27.2	49.2	73.1	26.2	66.9	105.9	32.9
	1974	45.5	68.8	23.5	43.9	66.0	22.7	57.8	91.3	28.6
	1975	44.2	67.0	22.8	42.6	64.1	22.1	56.1	89.5	27.1
	1976	42.5	63.9	22.4	41.3	61.5	21.9	52.3	83.4	25.3
	1977	43.1	64.5	22.8	41.9	62.2	22.4	52.1	83.1	25.2
	1978	43.5	65.4	22.9	42.5	63.4	22.4	51.5	81.7	25.6
	1979	42.9	64.9	21.9	42.0	63.3	21.6	49.3	78.9	23.9
	1980	42.3	64.0	21.8	41.5	62.3	21.4	49.5	78.4	24.8
	1981	40.2[3]	---	---	---	---	---	---	---	---
	1982	37.1[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Provisional.

Table 2.24
Deaths Due to Accidents by Type of Accident, Michigan Residents, 1982

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
236	Motor Vehicle Accidents Involving Collision with Another Motor Vehicle	615	19.8
252	Fracture, Cause Unspecified, and Other and Unspecified Falls	305	9.8
239	Motor Vehicle Accidents Not Involving Collision on Highway	299	9.6
237	Motor Vehicle Accidents Involving Collision with Pedestrian	248	8.0
262	All Other Accidents, and Late Effects of Accidental Injury	229	7.4
238	Motor Vehicle Accidents Involving Collision with Other Vehicle or Object	227	7.3
253	Accidents Caused by Fires and Flames	200	6.4
255	Accidental Drowning and Submersion	163	5.2
256	Inhalation and Ingestion of Food or Other Object Causing Obstruction of Respiratory Tract or Suffocation	145	4.7
250	Fall From One Level to Another	117	3.8
240	Motor Vehicle Traffic Accidents of Unspecified Nature	89	2.9
246	Accidental Poisoning by Drugs, Medicaments, and Biologicals	86	2.8
248	Accidental Poisoning by Gases and Vapors	76	2.4
241	Motor Vehicle Nontraffic Accidents	49	1.6
249	Misadventures During Medical Care, Abnormal Reactions, and Late Complications	41	1.3
243	Water Transport Accidents	41	1.3
258	Accidents Caused by All Other and Unspecified Firearms	34	1.1
235	Motor Vehicle Accidents Involving Collision with Train	28	0.9
244	Air and Space Transport Accidents	26	0.8
261	Accidents Caused by Electric Current	23	0.7
234	Railway Accidents	15	0.5
247	Accidental Poisoning by Other Solid or Liquid Substances	14	0.4
263	Drugs, Medicaments, and Biological Substances Causing Adverse Effects in Therapeutic Use	12	0.4
259	Accidents Caused by Explosive Material	10	0.3
242	Other Road Vehicle Accidents	7	0.2
251	Fall on Same Level	6	0.2
254	Lightning	4	0.1
260	Accidents Caused by Hot Substance or Object, Caustic or Corrosive Material, Steam, and Exposure to Radiation	3	0.1
245	Vehicle Accidents Not Elsewhere Classifiable	1	0.0
	Total	3,113	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

Table 2.25
Deaths Due to Accidents by Age at Death and Type of Accident, Michigan Residents, 1982

TYPE OF ACCIDENT	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	3,113	333	660	807	589	724
Motor Vehicle Accidents	1,555	129	492	493	263	178
Accidental Falls	428	7	10	45	85	281
Accidents Caused by Fire and Flames	200	68	9	39	37	47
Accidental Drownings	163	59	34	38	19	13
Accidental Poisonings	176	5	36	71	44	20
Choking on Food or Other Object	145	15	6	12	45	67
Accidents Caused by Handguns and Other Firearms	34	6	14	9	4	1
Air and Space Transport Accidents	26	3	2	10	10	1
Misadventures During Medical Care, Abnormal Reactions, and Late Complications	41	-	1	1	10	29
Water Transport Accidents	41	2	16	12	6	5
All Other Accidents	304	39	40	77	66	82

fires, and drownings, resulting in 129, 68, and 59 deaths respectively in 1982. Motor vehicle accidents and poisoning were the leading causes of accidental death among persons 15-44 years of age. Motor vehicle accidents and poisonings were also the leading causes of accidental death among persons 25-44 years of age, resulting in 61.1 percent and 8.8 percent, respectively, of all accidental deaths in this age group. Accidental falls, which caused 13.7 percent of all accidental deaths, were the cause of 38.8 percent of the accidental deaths among persons 65 years of age or older.

Table 2.26 displays the distribution of motor vehicle accident deaths by the age of the deceased person and the type of involvement of the deceased in the accident. Of the 1,555 persons killed in motor vehicle accidents in 1982, 617 (39.7 percent) were driving motor vehicles other than motorcycles at the time of the fatal accident. There were 294 deaths of passengers in motor vehicles other than motorcycles, while 270 pedestrians were killed in motor vehicle accidents. Motorcycle accidents resulted in the deaths of 94 motorcyclists and 14 motorcycle passengers. It should be noted that for 219 deaths (14.1 percent of the total) the type of involvement of the deceased in the accident was not stated.

The type of involvement of the deceased in the accident varied by age. The majority of children under age 15 killed in motor vehicle accidents were either pedestrians (39.5 percent) or passengers (26.4 percent). Nearly two thirds of the persons 15-24 years of age who died in motor vehicle accidents in 1982 were either drivers (39.2 percent) or passengers (24.0 percent) of motor vehicles other than motorcycles. Among persons 25-44 years and 45-64 years of age 47.7 percent and 44.9 percent respectively were driving motor vehicles other than motorcycles at the time of the accident. Pedestrians accounted for 21.9 percent of all motor vehicle accident deaths among persons 65 years of age or older, compared to 17.4 percent for persons of all ages.

Of the total 3,113 accidental deaths, 1,546 or 49.7 percent of the accidents occurred on streets and highways (Table 2.27). The second most common place of occurrence was the home with 687 deaths (22.1 percent). There were 66 deaths attributed to accidents at industrial places and premises, 40 in public buildings, and 35 on farms. Note that the place of injury was not specified for 13.3 percent of the accidental deaths.

It can be seen from Figure 2.25 that the probability of eventually having an accidental death is greater for younger persons. According to Michigan mortality data from the years 1980 through 1982 the probability of eventually dying from accidental causes is 0.040 for males and 0.022 for females at birth. Probabilities for males decline slowly

Table 2.26
Deaths from Motor Vehicle Accidents by Person Injured and Age at Death, Michigan Residents, 1982

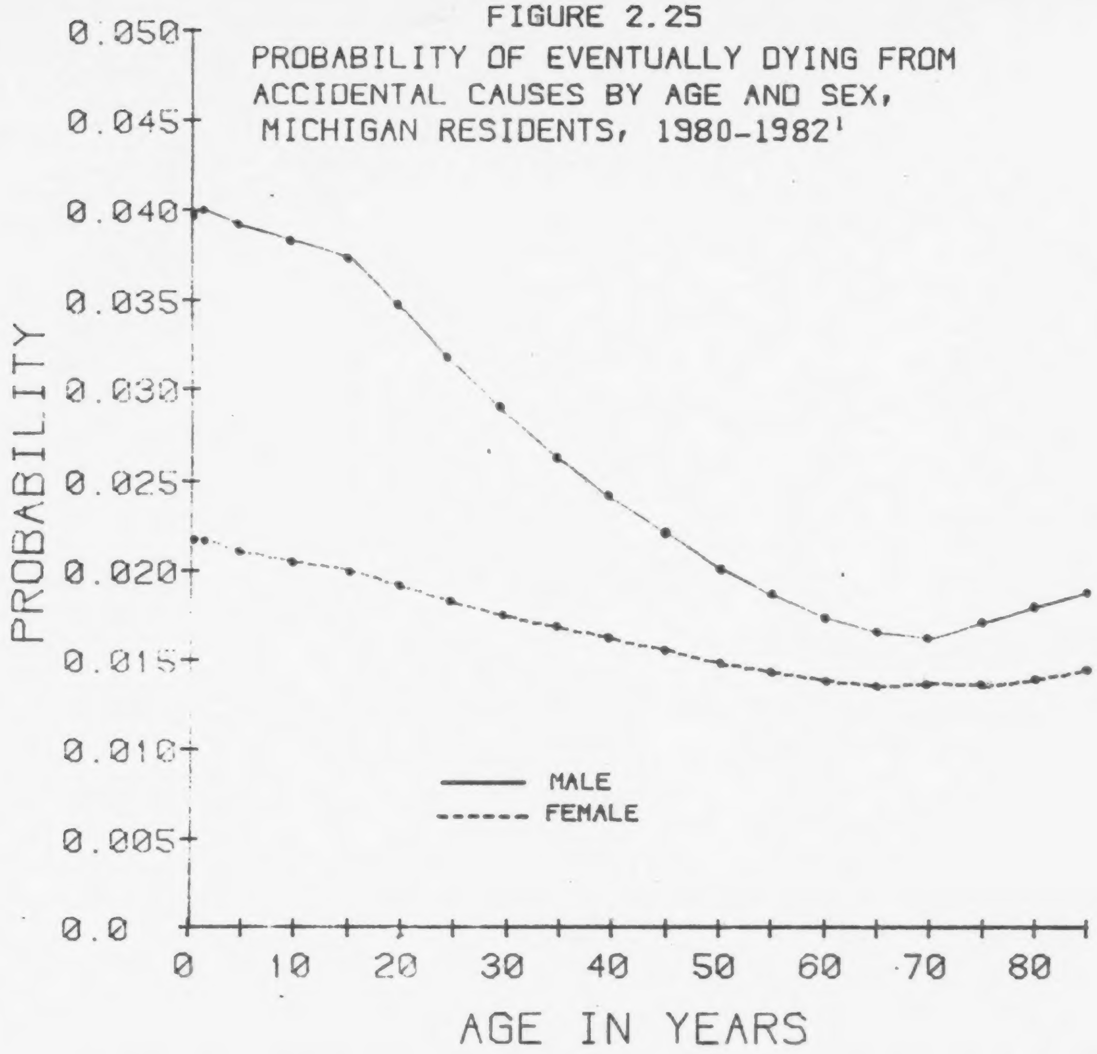
PERSON INJURED	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	1,555	129	492	493	263	178
Driver of Motor Vehicle Other Than Motorcycle	617	1	193	235	118	70
Passenger in Motor Vehicle Other Than Motorcycle	294	34	118	69	40	33
Motorcyclist	94	5	35	42	12	-
Passenger on Motorcycle	14	2	7	3	2	-
Pedal Cyclist	46	25	10	5	5	1
Pedestrian	270	51	66	71	43	39
Other Specified Person	1	-	-	1	-	-
Unspecified Person . .	219	11	63	67	43	35

Table 2.27
Deaths Due to Accidents by Place of Injury, Michigan Residents, 1982

PLACE	NUMBER OF DEATHS
Street and Highway	1,546
Home	687
Place for Recreation and Sport	80
Industrial Place and Premises	66
Resident Institution	55
Public Building	40
Farm	35
Mine and Quarry	7
Other Specified Places	184
Place Not Specified	413
Total	3,113

FIGURE 2.25

PROBABILITY OF EVENTUALLY DYING FROM ACCIDENTAL CAUSES BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

through childhood and the teenage years, fall rapidly between ages 15 and 40, and thereafter decline more slowly until the lowest probability of 0.016 is reached at age 70. For females the probabilities decline more moderately and steadily. Probabilities for males remain much higher than for females until about age 45 and slightly higher after that age.

CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS

The fifth leading cause of death in 1982 was chronic obstructive pulmonary diseases and allied conditions. This group of diseases caused 2,205 Michigan resident deaths, essentially the same as 1981 (2,203). Of the 2,205 deaths, 1,464 (66.4 percent) were to males (Table 2.28).

The median age at death of persons who died from these respiratory diseases was 73 years, slightly higher than the median of 72 years for deaths from all causes. However, unlike deaths from all causes where the median for females was substantially higher than for males (76 years and 69 years), the median age of females who died from chronic obstructive pulmonary diseases and allied conditions was lower than that for males (72 years compared to 74 years). The median age for white persons (74 years) was ten years higher than that for persons of other races (64 years).

The crude death rate for chronic obstructive pulmonary diseases and allied conditions was 23.9 per 100,000 population. The crude death rate for males was 2.1 times that for females (Table 2.29). Age-specific rates for males and females from Table 2.29 are graphically presented in Figure 2.26. The strong association between chronic obstructive pulmonary diseases and allied conditions and increasing age is clearly evident. Note also that age-specific rates for males are as high or higher than those for females in all age groups with sufficient events to calculate rates. The relative differential between rates for males and females increases steadily with age. In the age group 85 years and over the rate for males is 4.2 times that for females. The age-adjusted death rate for this group of diseases was 2.6 times as high for males as it was for females (25.8 and 9.8 deaths per 100,000 population respectively).

Age-specific rates for white and other than white persons are displayed in Figure 2.27. Rates were higher for other than white persons prior to age 65, after which they were higher for white persons. The age-adjusted death rate from these respiratory diseases for white persons was 19.6 percent above that for other than white persons.

Table 2.30 presents age-adjusted death rates by sex and race for the period 1970-1982 for deaths from this group of respiratory diseases. The age-adjusted death rates for males remained fairly constant over the decade, while for females the rate in 1982 was 75 percent higher than in 1970. The increase in age-adjusted rates for females was mainly due to an even larger increase (85.2 percent) in rates for white females, while the rate for other than white females was 11.9 percent higher in 1982 than in 1970. The age-adjusted death rate for the total population of Michigan

Table 2.28
Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex[1], Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	4	2	2	3	2	1	1	-	1	-	-	-
5-9	1	-	1	-	-	-	1	-	1	-	-	-
10-14	2	1	1	2	1	1	-	-	-	-	-	-
15-19	6	3	3	3	1	2	3	2	1	-	-	-
20-24	5	5	-	2	2	-	3	3	-	-	-	-
25-29	2	1	1	1	1	-	1	-	1	-	-	-
30-34	5	4	1	3	2	1	2	2	-	-	-	-
35-39	7	4	3	1	-	1	6	4	2	-	-	-
40-44	18	10	8	12	6	6	6	4	2	-	-	-
45-49	26	13	13	17	9	8	9	4	5	-	-	-
50-54	65	40	24	49	30	18	16	10	6	-	-	-
55-59	127	68	59	110	58	52	17	10	7	-	-	-
60-64	220	141	79	193	123	70	26	18	8	1	-	1
65-69	324	215	109	297	196	101	27	19	8	-	-	-
70-74	399	277	122	375	257	118	23	19	4	1	1	-
75-79	414	283	131	402	272	130	12	11	1	-	-	-
80-84	283	205	78	267	190	77	16	15	1	-	-	-
85-89	198	133	65	189	126	63	8	6	2	1	1	-
90+	99	59	40	96	56	40	3	3	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2205	1464	740	2022	1332	689	180	130	50	3	2	1
Median Age At Last Birthday	73	74	72	74	74	73	64	67	58	*	*	*

[1] The death of 1 white person with sex not stated is included only in the total column.

Table 2.29
Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	23.9	32.6	15.7	26.0	35.1	17.4	12.5	18.8	6.7
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.4	*	*	0.3	*	*	*	*	*
15-24 Years	0.6	0.9	*	0.3	*	*	2.0	3.5	*
25-34 Years	0.4	0.6	*	*	*	*	*	*	*
35-44 Years	2.4	2.8	2.1	1.5	1.4	1.6	8.3	11.8	*
45-54 Years	10.1	12.1	8.2	8.5	10.2	6.8	20.8	25.5	16.9
55-64 Years	39.4	50.4	29.6	39.0	49.4	29.7	42.8	58.3	29.1
65-74 Years	126.8	197.7	71.9	132.7	205.2	76.6	79.6	137.6	34.1
75-84 Years	248.7	468.4	118.7	263.9	495.2	129.2	104.8	238.8	*
85 Years and Over	341.8	730.2	173.2	356.1	758.0	183.4	166.6	418.2	*
Age-Adjusted Rate[2]	16.3	25.8	9.8	16.5	26.1	10.0	13.8	22.2	7.5

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable

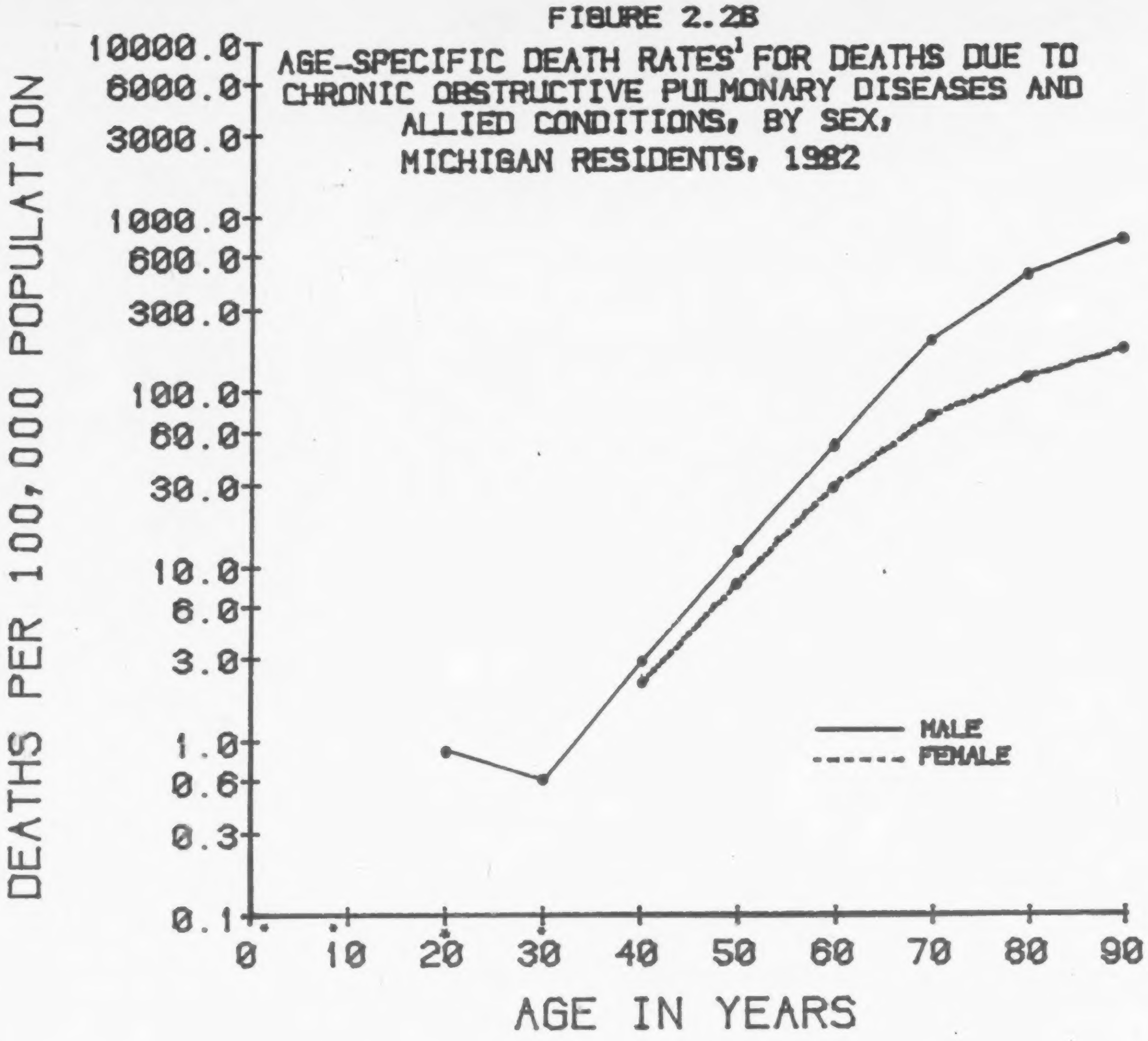


FIGURE 2.28

AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS, BY SEX, MICHIGAN RESIDENTS, 1982

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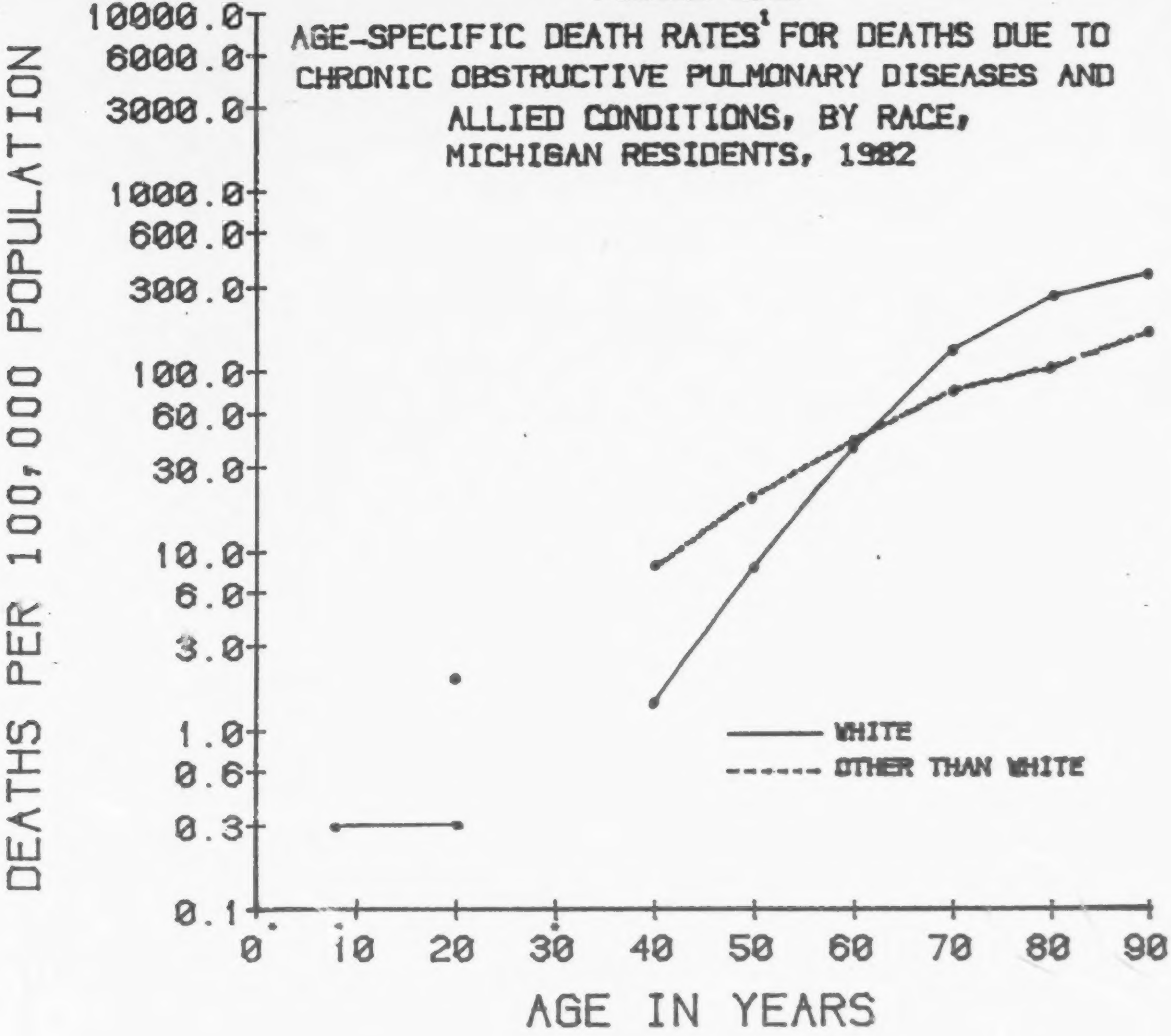
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.27

AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS, BY RACE, MICHIGAN RESIDENTS, 1982



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

Table 2.30
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions[2] by Race and Sex, Michigan Residents, 1970-1982 and United States Residents, 1979-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	14.2	24.9	5.6	14.3	25.3	5.4	12.3	18.5	6.7
	1971	13.9	24.4	5.6	13.0	24.5	5.4	13.8	22.0	6.5
	1972	14.9	26.5	5.7	15.2	27.2	5.8	11.0	19.1	4.2
	1973	15.4	26.7	6.4	15.6	27.3	6.5	12.0	20.2	5.0
	1974	13.8	24.1	5.8	14.2	24.7	6.1	9.4	16.9	3.1
	1975	14.3	25.1	6.1	14.6	25.7	6.2	11.0	18.3	5.0
	1976	14.7	25.4	6.8	15.0	26.0	6.9	11.7	20.2	4.9
	1977	14.1	24.4	6.5	14.5	25.2	6.5	10.5	16.5	5.7
	1978	15.7	26.1	8.2	15.9	26.4	8.4	13.5	22.8	6.1
	1979	15.2	26.1	7.4	15.5	26.7	7.6	12.2	20.7	5.6
	1980	15.7	25.5	8.9	16.0	25.8	9.2	12.7	21.5	5.7
	1981	16.3	26.4	9.3	16.6	27.0	9.5	13.2	21.2	7.3
	1982	16.3	25.8	9.8	16.5	26.1	10.0	13.8	22.2	7.5
U.S.	1979	14.6	24.3	7.7	14.9	25.0	8.0	10.5	17.4	5.3
	1980	15.9	26.1	8.9	16.3	26.7	9.2	11.5	19.2	5.8
	1981	16.6[3]	---	---	---	---	---	---	---	---
	1982	16.2[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Categories used for 1970-1978 are 8th Revision ICDA codes 490-493 (bronchitis, emphysema, and asthma) and *519.3 (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema). For years since 1979 9th Revision ICD codes 490-496 are used. No single comparability ratio was developed for the 9th Revision category and the most nearly comparable 8th Revision categories. However, for the combined categories of bronchitis, emphysema, and asthma the provisional comparability ratio is 1.0002, and that for the remaining titles (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema under the 8th Revision and other chronic obstructive pulmonary diseases and allied conditions under the 9th Revision) is 1.0054. Thus, the comparability between the composite categories is quite good. The composite category was not used for ranking causes of death under the 8th Revision and thus appeared in 1979 for the first time among the 10 leading causes of death.

[3] Provisional.

from chronic obstructive pulmonary diseases and allied conditions was 16.3 in 1982. This approximates the United States provisional age-adjusted rate of 16.2 (see Technical Notes).

Of the 2,205 Michigan resident deaths due to chronic obstructive pulmonary diseases and allied conditions, 1,439 (65.3 percent) were classified as chronic airways obstruction, not elsewhere classified. There were 496 deaths in 1982 due to emphysema, 127 due to bronchitis, and 132 due to asthma (Table 2.31).

Based on mortality data from 1980-1982, the probability of eventual death due to chronic obstructive pulmonary diseases and allied conditions is 0.039 for males and 0.019 for females at birth. The probability for males increases steadily to a peak of 0.047 at age 65 and then declines in the last few age groups. The probability for females remains stable from birth through age 60 and then declines in the oldest age groups (Figure 2.28). By age 85 the probability for females declines to 0.011. It should be recalled that these probability estimates are based on mortality data which have been changing rapidly, in part due to changing diagnostic conventions.

Table 2.31
Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Specific Cause, Michigan Residents, 1982

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
174	Chronic Airways Obstruction, not elsewhere classified	1,439	65.3
171	Emphysema.	496	22.5
172	Asthma	132	6.0
170	Chronic Bronchitis	110	5.0
169	Bronchitis, not Specified as Acute or Chronic.	17	0.8
173	Bronchiectasis and Extrinsic Allergic Alveolitis . . .	11	0.5
	Total.	2,205	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the *International Classification of Diseases*, WHO.

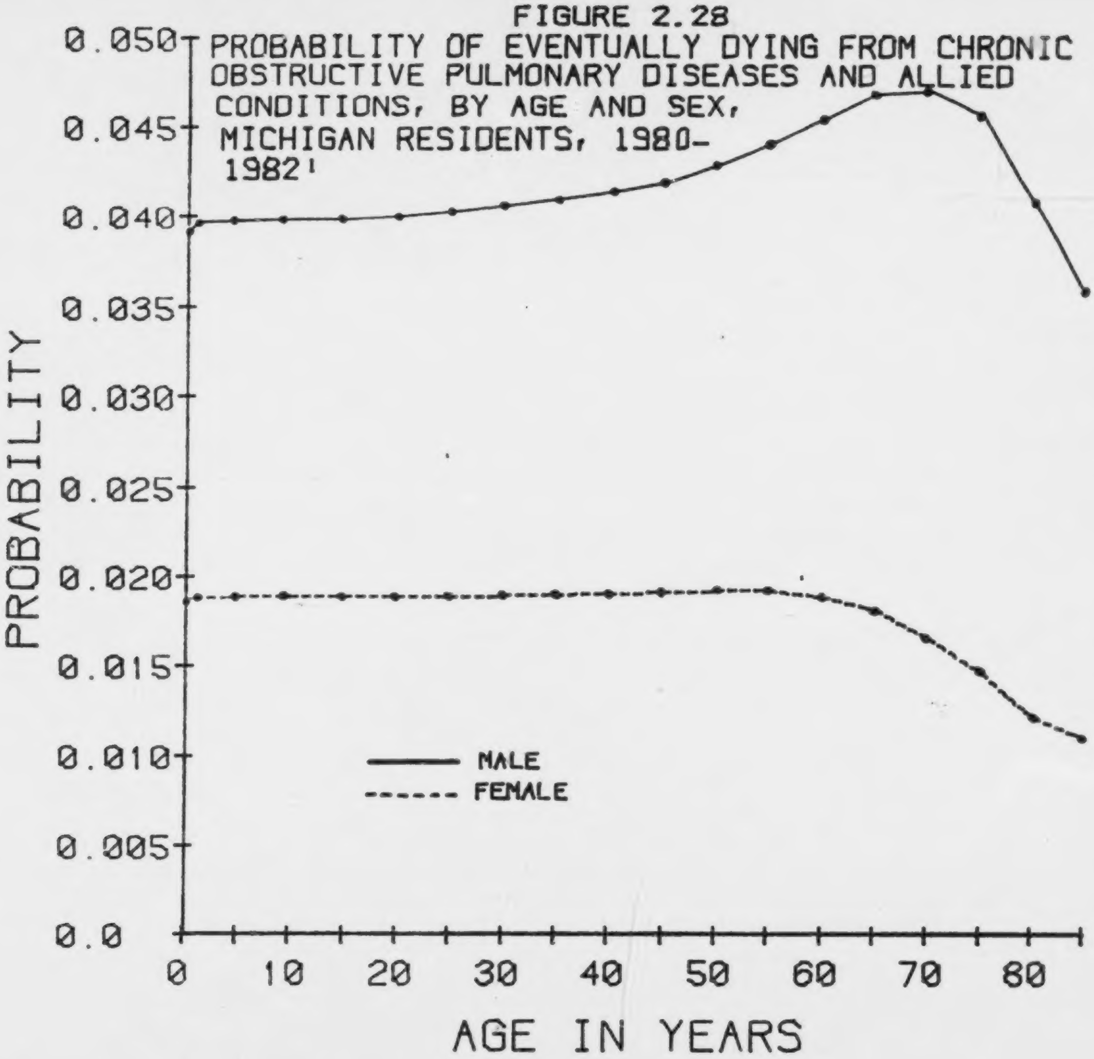

FIGURE 2.28
PROBABILITY OF EVENTUALLY DYING FROM CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS, BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]

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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

PNEUMONIA AND INFLUENZA

One of every 44 deaths that occurred to Michigan residents in 1982 was due to pneumonia and influenza. There were a total of 1,701 such deaths of which 910 (53.5 percent) were to males.

The overall median age at death in 1981 for those dying from pneumonia and influenza was 80 years (Table 2.32). This is well above the median age of 72 years for all deaths. The median ages at death for white persons were significantly higher than those for other than white persons. The median age for white males (79) was 13 years greater than that for other than white males (66), while for white females the median of 83 years exceeded by 12 years that for other than white females. For persons of all races the median for males was 5 years less than that for females.

The overall crude death rate for pneumonia and influenza deaths in 1982 was 18.4, compared to a rate of 18.5 in 1981. The crude rate of 20.2 for males was 21.1 percent higher than the rate of 16.7 for females. On an age-adjusted basis, this differential increased significantly. The age-adjusted rate for males exceeded that for females by 91.1 percent (Table 2.33).

The age-specific death rates for males and females given in Table 2.33 are graphically displayed in Figure 2.29. Note the high pneumonia and influenza death rates for both sexes under 1 year of age. Pneumonia and influenza death rates increased rapidly beyond age 54 with rates for males significantly higher than for females.

The crude rates given in Table 2.33 indicate that a greater proportion of the white population died of pneumonia and influenza in 1981 than was the case for the other than white population. On an age-adjusted basis, however, the rate for the other than white group was 43.6 percent above that for the white group. Age-specific data indicate that the rates for the other than white population were higher from birth to age 85. Among persons 85 years or over, the pneumonia and influenza death rate was higher for white persons (Figure 2.30).

Pneumonia and influenza death rates have declined markedly since 1900 both nationally and in Michigan (Figure 2.31). The annual rate was quite erratic from 1900 through 1940 or 1945. Since that time the rate has been fairly stable in terms of year to year variation while the general trend has remained downward. Michigan's rate of death due to this cause has been below the national rate almost without exception throughout this century. In 1900, the rate in Michigan was 120.3 while the national statistic was 202.1. The peak year for both was 1918 when the rates for

Table 2.32
Deaths Due to Pneumonia and Influenza by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	15	10	5	8	6	2	7	4	3	-	-	-
1-4	9	6	3	7	4	3	2	2	-	-	-	-
5-9	1	1	-	1	1	-	-	-	-	-	-	-
10-14	2	-	2	-	-	-	2	-	2	-	-	-
15-19	5	4	1	4	3	1	1	1	-	-	-	-
20-24	9	7	2	7	6	1	2	1	1	-	-	-
25-29	10	5	5	6	2	4	4	3	1	-	-	-
30-34	11	8	3	7	4	3	4	4	-	-	-	-
35-39	20	7	13	13	3	10	7	4	3	-	-	-
40-44	16	6	10	12	5	7	4	1	3	-	-	-
45-49	35	28	7	18	14	4	17	14	3	-	-	-
50-54	34	19	15	23	13	10	11	6	5	-	-	-
55-59	49	32	17	40	26	14	9	6	3	-	-	-
60-64	87	50	37	70	39	31	17	11	6	-	-	-
65-69	104	59	45	84	49	35	20	10	10	-	-	-
70-74	153	97	56	133	86	47	20	11	9	-	-	-
75-79	262	163	99	241	149	92	19	12	7	2	2	-
80-84	296	165	131	268	148	120	28	17	11	-	-	-
85-89	291	141	150	277	132	145	14	9	5	-	-	-
90+	291	101	190	274	96	178	17	5	12	-	-	-
Not Stated	1	1	-	1	1	-	-	-	-	-	-	-
All Ages	1701	910	791	1494	787	707	205	121	84	2	2	-
Median Age At Last Birthday	80	78	82	81	79	83	68	66	71	*	*	*

Table 2.33
Pneumonia and Influenza Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	18.4	20.2	16.7	19.2	20.8	17.8	14.1	17.5	11.1
Under 1 Year	10.7	14.0	7.3	7.1	10.4	*	24.8	*	*
1-14 Years	0.6	0.7	0.5	0.5	0.6	*	*	*	*
15-24 Years	0.8	1.2	*	0.7	1.2	*	*	*	*
25-34 Years	1.3	1.7	1.0	1.0	0.9	1.0	3.1	5.8	*
35-44 Years	3.5	2.6	4.4	2.9	1.8	3.8	7.6	7.4	7.8
45-54 Years	7.7	10.8	4.7	5.3	7.1	3.5	23.4	36.5	12.3
55-64 Years	15.4	19.8	11.6	14.1	17.7	11.0	25.3	35.4	16.4
65-74 Years	45.1	62.7	31.4	42.8	61.0	28.7	63.7	76.1	53.9
75-84 Years	199.1	314.8	130.6	201.5	320.5	132.3	175.9	266.3	113.7
85 Years and Over	670.9	924.1	561.0	687.4	948.5	575.1	469.6	650.6	382.1
Age-Adjusted Rate[2]	10.8	15.1	7.9	10.1	14.3	7.5	14.5	20.1	10.3

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unraliable.

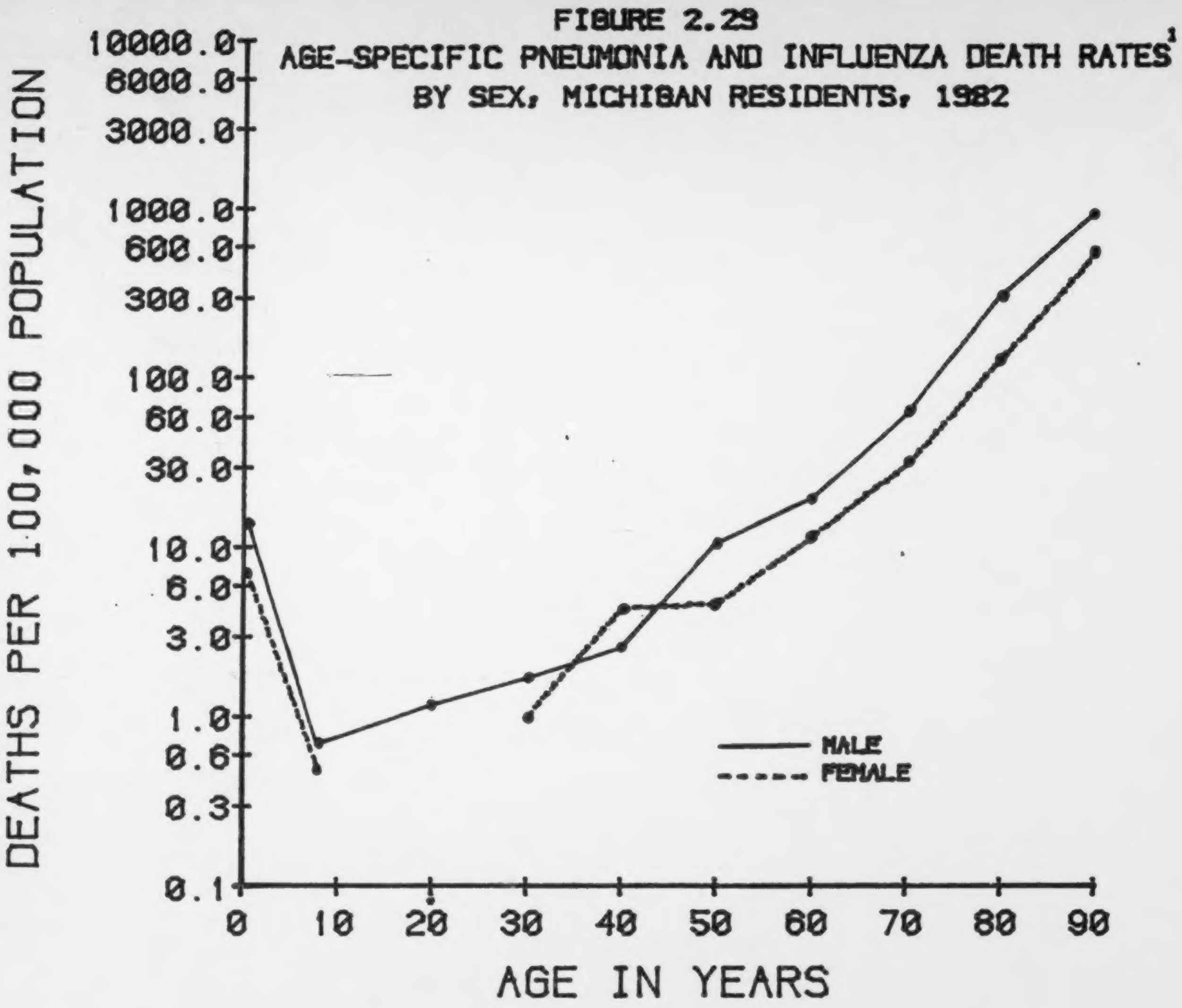


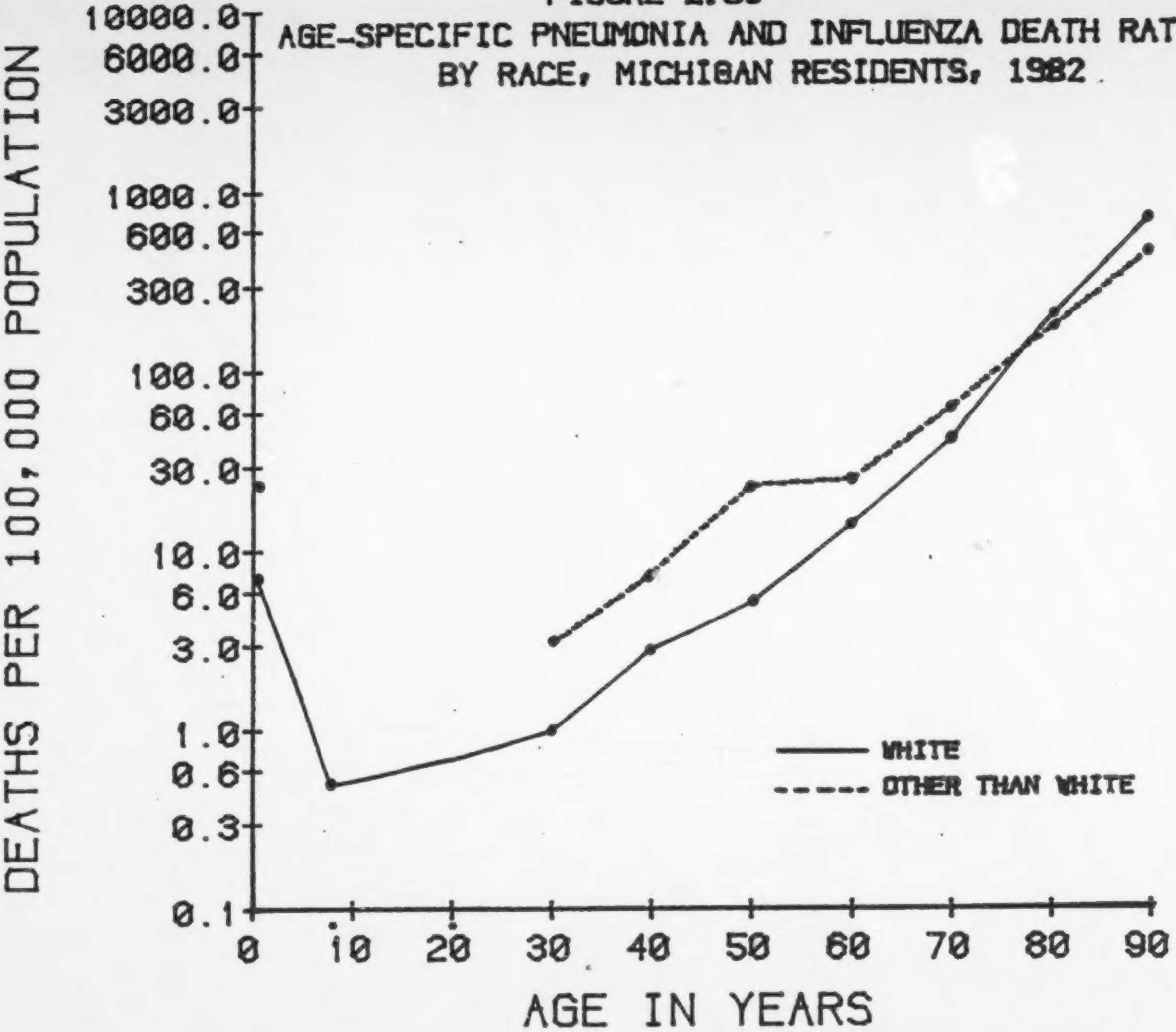
FIGURE 2.23

AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1982

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

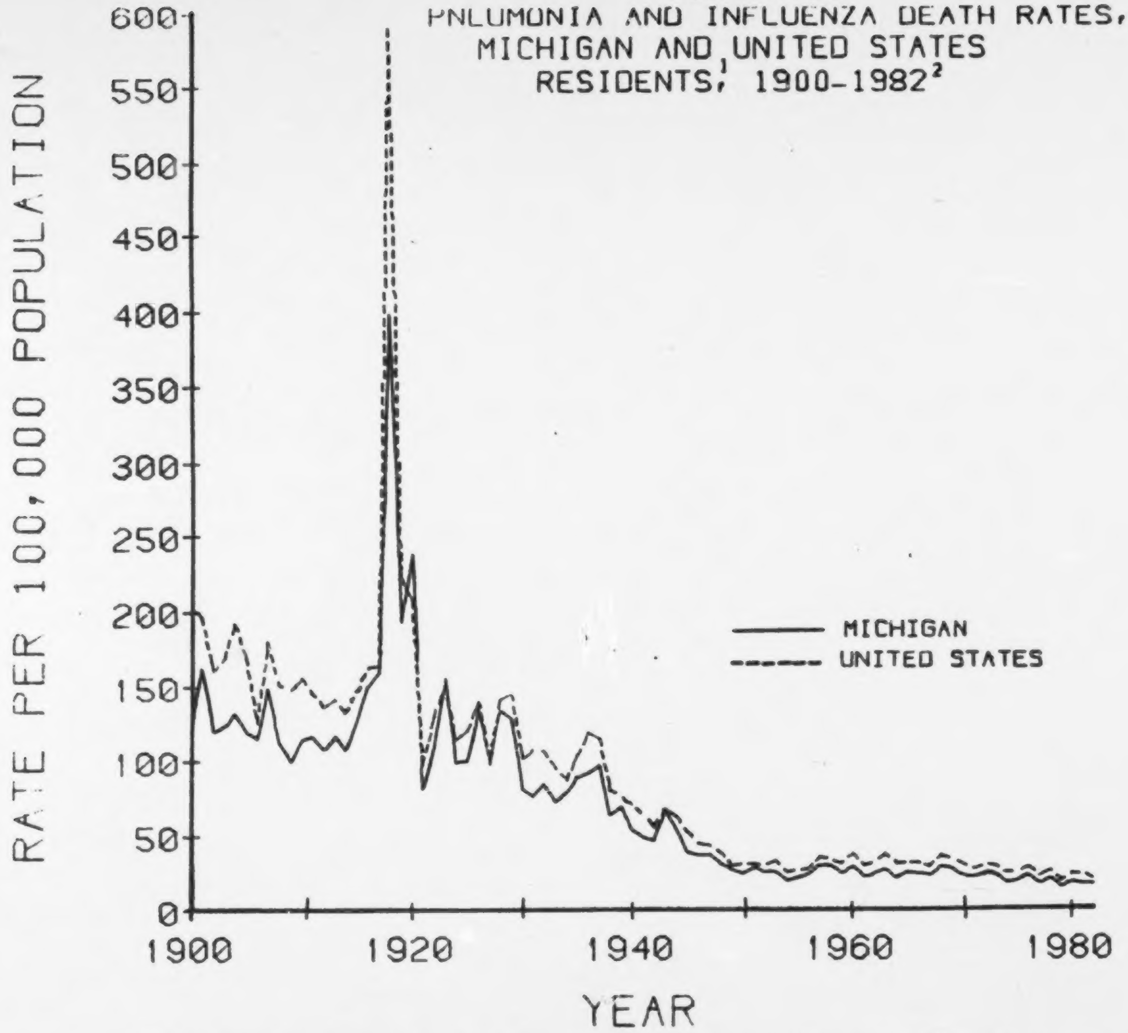
FIGURE 2.30
AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1]
BY RACE, MICHIGAN RESIDENTS, 1982



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.31
PNEUMONIA AND INFLUENZA DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1982[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Pneumonia and influenza death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

the United States and Michigan were 588.5 and 399.8, respectively. In 1979 century low rates of 15.9 for Michigan and 20.5 for the nation were recorded. Michigan's rate of 18.4 in 1982 was 13.2 percent below the provisional rate of 21.2 for the United States.

Michigan's age-adjusted death rate for pneumonia and influenza has been below that for the nation every year since 1970 (Table 2.34). Between 1970 and 1982 the age-adjusted rate for Michigan declined by 43.8 percent. Rates for other than white persons declined more rapidly than rates for white persons. The decline was most dramatic for other than white females for whom the age-adjusted rate dropped from 30.8 in 1970 to 10.3 in 1982, a decline of 66.6 percent. The declines in rates for other than white males and females while more pronounced in Michigan were mirrored by strong declines in the rates for the United States.

The majority of deaths due to pneumonia and influenza were not attributed to a specific organism. Pneumonia due to other and unspecified organisms (1,281) accounted for 75.3 percent of all Michigan pneumonia and influenza deaths in 1982 (Table 2.35). Another 13.2 percent of the deaths were due to bronchopneumonia, organism unspecified, and 140 deaths were due to pneumococcal and other bacterial pneumonia. The three most frequent categories of pneumonia and influenza deaths together accounted for 96.7 percent of all such deaths. Influenza was the direct cause of 2.1 percent of the pneumonia and influenza deaths in 1982, compared to 4.2 percent in 1981.

The likelihood of eventual death being caused by pneumonia and influenza is between 0.027 and 0.028 for females and between 0.026 and 0.027 for males from birth to age 50. The calculated probabilities for each sex increase after this age, with probabilities for males increasing more rapidly than those for females. Based on the Michigan mortality experience of 1980-1982, by age 85 the chances of eventually dying from pneumonia and influenza are 0.050 for males and 0.041 for females (Figure 2.32).

Table 2.34
Age-Adjusted Pneumonia and Influenza Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	19.2	24.7	14.6	16.7	21.8	12.5	38.8	47.9	30.8
	1971	17.7	23.9	12.7	15.4	20.6	11.3	35.6	50.1	22.9
	1972	18.7	25.7	12.9	16.8	23.1	11.8	32.7	46.6	20.4
	1973	17.0	21.9	13.2	14.9	19.4	11.5	33.8	42.7	26.3
	1974	13.3	17.7	10.0	12.1	15.7	9.5	22.5	33.2	13.5
	1975	14.0	18.6	10.6	13.0	17.2	10.0	21.2	28.7	14.7
	1976	15.7	20.8	12.0	14.8	19.6	11.5	21.5	29.5	14.9
	1977	12.2	17.6	8.2	11.5	16.5	7.8	17.2	25.1	10.7
	1978	14.1	18.1	11.2	13.8	17.7	11.0	15.5	20.1	11.8
	1979	9.6	13.3	7.1	9.0	12.3	6.7	13.9	19.1	9.6
	1980	11.7	16.1	8.6	10.8	14.6	8.2	17.9	27.0	10.7
	1981	10.8	14.9	7.9	9.8	13.5	7.4	17.1	25.0	10.9
	1982	10.8	15.1	7.9	10.1	14.3	7.5	14.5	20.1	10.3
	1970	22.1	28.8	16.7	19.8	26.0	15.0	38.1	50.1	27.9
	1971	19.2	25.1	14.6	17.5	22.8	13.4	31.6	42.2	22.6
	1972	20.7	27.5	15.5	19.0	25.3	14.4	32.4	44.3	22.6
	1973	19.9	26.4	15.0	18.3	24.4	13.9	31.0	42.0	22.2
	1974	16.8	22.4	12.6	15.6	20.8	11.8	25.1	34.9	17.2
	1975	16.4	22.2	12.1	15.4	20.8	11.5	23.6	33.4	15.8
	1976	17.1	22.9	13.0	16.1	21.5	12.4	24.0	33.5	16.5
	1977	13.9	19.1	10.2	13.0	17.8	9.6	20.6	29.5	13.6
	1978	15.1	20.6	11.3	14.2	19.3	10.7	21.4	30.8	14.2
	1979	11.2	15.4	8.2	10.5	14.4	7.8	15.8	22.8	10.5
	1980	12.9	17.4	9.8	12.2	16.2	9.4	18.0	26.1	11.9
	1981	12.8[4]	---	---	---	---	---	---	---	---
	1982	11.3[4]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Unites States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] The introduction in 1979 of the 9th Revision of the International Classification of Diseases, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 0.9264. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

[4] Provisional.

Table 2.35
Deaths Due to Pneumonia and Influenza by Specific Cause, Michigan Residents, 1982

282 LIST' NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
167	Pneumonia due to Other and Unspecified Organism	1,281	75.3
166	Bronchopneumonia, Organism Unspecified	224	13.2
165	Pneumococcal and Other Bacterial Pneumonia . .	140	8.2
168	Influenza	36	2.1
164	Viral Pneumonia	20	1.2
	Total	1,701	100.0

'List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

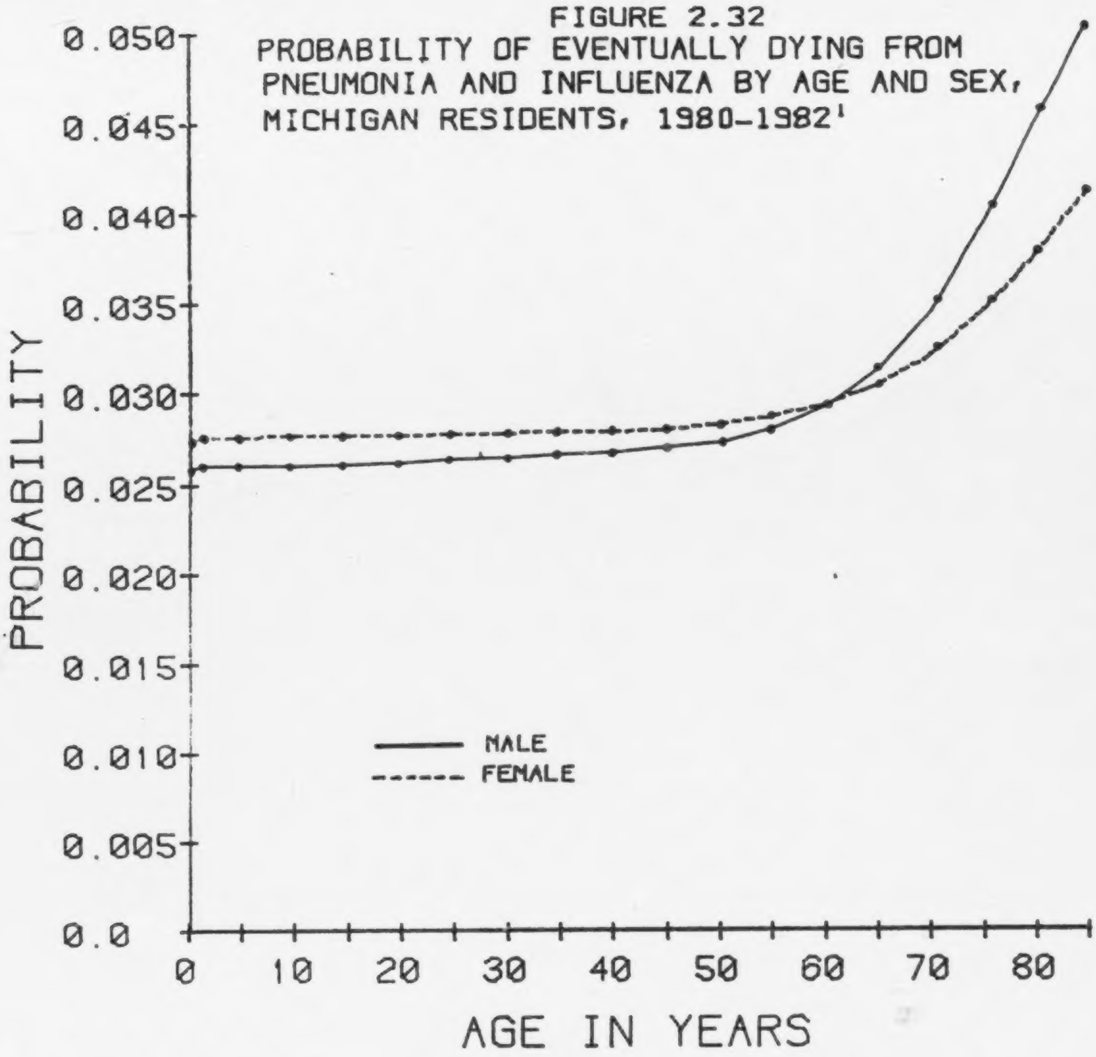

FIGURE 2.32
PROBABILITY OF EVENTUALLY DYING FROM PNEUMONIA AND INFLUENZA BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]

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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

DIABETES MELLITUS

In 1982 diabetes mellitus caused the deaths of 1,347 Michigan residents. This is 140 fewer deaths than were caused by this disease in 1981. Deaths to females numbered 789 or 58.6 percent of all diabetes mellitus deaths. There were 558 diabetes mellitus deaths to males in 1982.

The median age at death for persons dying from diabetes mellitus was 73 years (Table 2.36). This is one year above the median age of all deaths. Males dying from this disease had a median age of 70 years, whereas the median for females was 76 years. The median for white males was 71 years compared to 77 years for white females. For other than white males the median was 66 years and that for other than white females also 66 years.

Diabetes mellitus death rates by age, race, and sex are presented in Table 2.37. The diabetes mellitus crude death rate was 14.6 in 1982. The crude rate for females was 16.7, about 35 percent higher than the rate of 12.4 for males. When age-adjusted rates are examined, however, this relationship is reversed. The age-adjusted rate of 10.4 for males was 7.2 percent above that of females (9.7). Age-specific mortality rates for males and females presented in Table 2.37 are graphically displayed in Figure 2.33. Rates for males were similar to or higher than those for females. Rates for both sexes increased steadily with advancing age.

Although the crude diabetes mellitus death rate for white persons was somewhat above that of other than white persons (14.9 compared to 12.9), the age-adjusted rate for the other than white population was 47.4 percent higher than that for the white population. The age-adjusted rate for other than white females was 71.9 percent above that of their white counterparts, while the age-adjusted rate for other than white males was 23.8 percent above that of white males. Age-specific rates for other than white persons were higher than those for white persons in all age groups below age 85 with a sufficient number of events to calculate rates (Figure 2.34). The greatest relative differential occurred for ages 45 through 54, where the rate for other than white persons was 2.9 times the rate for white persons.

Diabetes mellitus death rates in Michigan rose steadily from a low of 9.3 in 1900 to a peak of 29.7 in 1949 (Figure 2.35). Adoption of the 6th revision of the International Classification of Diseases in 1950 caused a significant change in Michigan diabetes death rates. From 22.6 in 1950 the rate dipped somewhat then rose to a peak of 27.0 in 1966. Since then the rate has declined 45.9 percent to 14.6 in 1982. This is the lowest rate since the 6th revision of the ICD was adopted in 1950. The decline in rate for 1982 follows two years of modest increase.

Table 2.36
Deaths Due to Diabetes Mellitus by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	1	-	1	-	-	-	1	-	1	-	-	-
15-19	2	1	1	2	1	1	-	-	-	-	-	-
20-24	5	2	3	5	2	3	-	-	-	-	-	-
25-29	10	6	4	7	4	3	3	2	1	-	-	-
30-34	16	7	9	12	5	7	4	2	2	-	-	-
35-39	21	14	7	17	12	5	4	2	2	-	-	-
40-44	24	13	11	20	12	8	4	1	3	-	-	-
45-49	28	17	11	19	10	9	9	7	2	-	-	-
50-54	53	31	22	37	25	12	16	6	10	-	-	-
55-59	75	29	46	61	24	37	14	5	9	-	-	-
60-64	154	72	82	125	63	62	29	9	20	-	-	-
65-69	157	73	84	137	67	70	20	6	14	-	-	-
70-74	166	81	85	141	70	71	25	11	14	-	-	-
75-79	196	79	117	171	71	100	25	8	17	-	-	-
80-84	199	62	137	179	55	124	20	7	13	-	-	-
85-89	155	52	103	146	48	98	9	4	5	-	-	-
90+	85	19	66	80	16	64	5	3	2	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1347	558	789	1159	485	674	188	73	115	-	-	-
Median Age At Last Birthday	73	70	76	74	71	77	66	66	66	*	*	*

Table 2.37
Diabetes Mellitus Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	14.6	12.4	16.7	14.9	12.8	17.0	12.9	10.5	15.1
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.4	*	*	0.5	*	*	*	*	*
25-34 Years	1.6	1.7	1.6	1.4	1.3	1.5	2.7	*	*
35-44 Years	4.4	5.4	3.5	4.2	5.5	2.9	5.5	*	6.5
45-54 Years	9.0	11.0	7.1	7.2	9.2	5.3	20.8	23.7	18.4
55-64 Years	26.0	24.4	27.5	23.9	23.7	24.1	41.8	29.2	52.8
65-74 Years	56.7	61.9	52.6	54.8	61.9	49.3	71.6	61.6	79.5
75-84 Years	140.9	135.3	144.3	138.0	135.0	139.8	168.4	137.7	189.5
85 Years and Over	276.2	270.0	278.8	281.4	265.1	288.5	212.1	325.3	157.3
Age-Adjusted Rate[2]	10.0	10.4	9.7	9.5	10.1	8.9	14.0	12.5	15.3

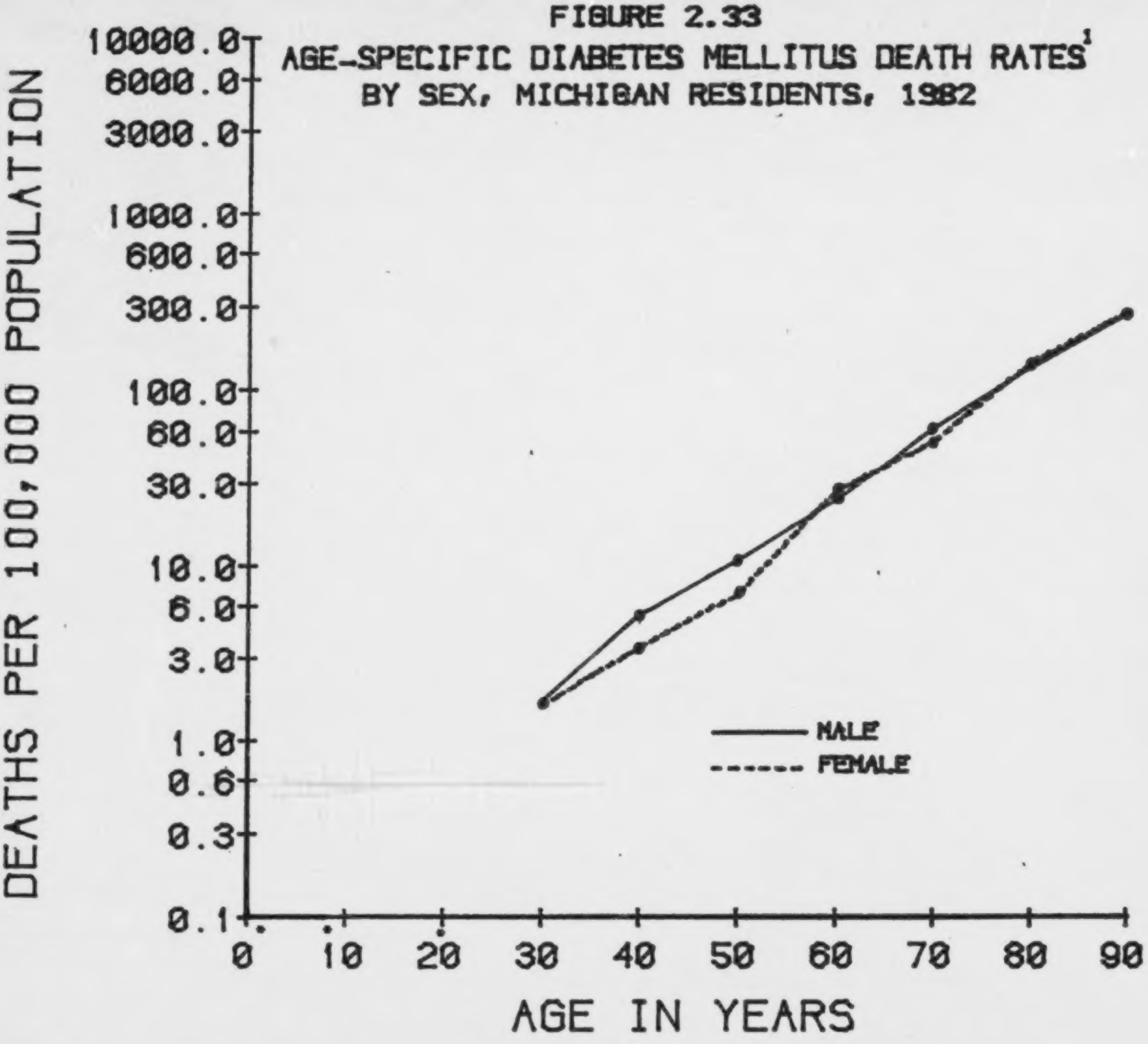
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

FIGURE 2.33

AGE-SPECIFIC DIABETES MELLITUS DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1982



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

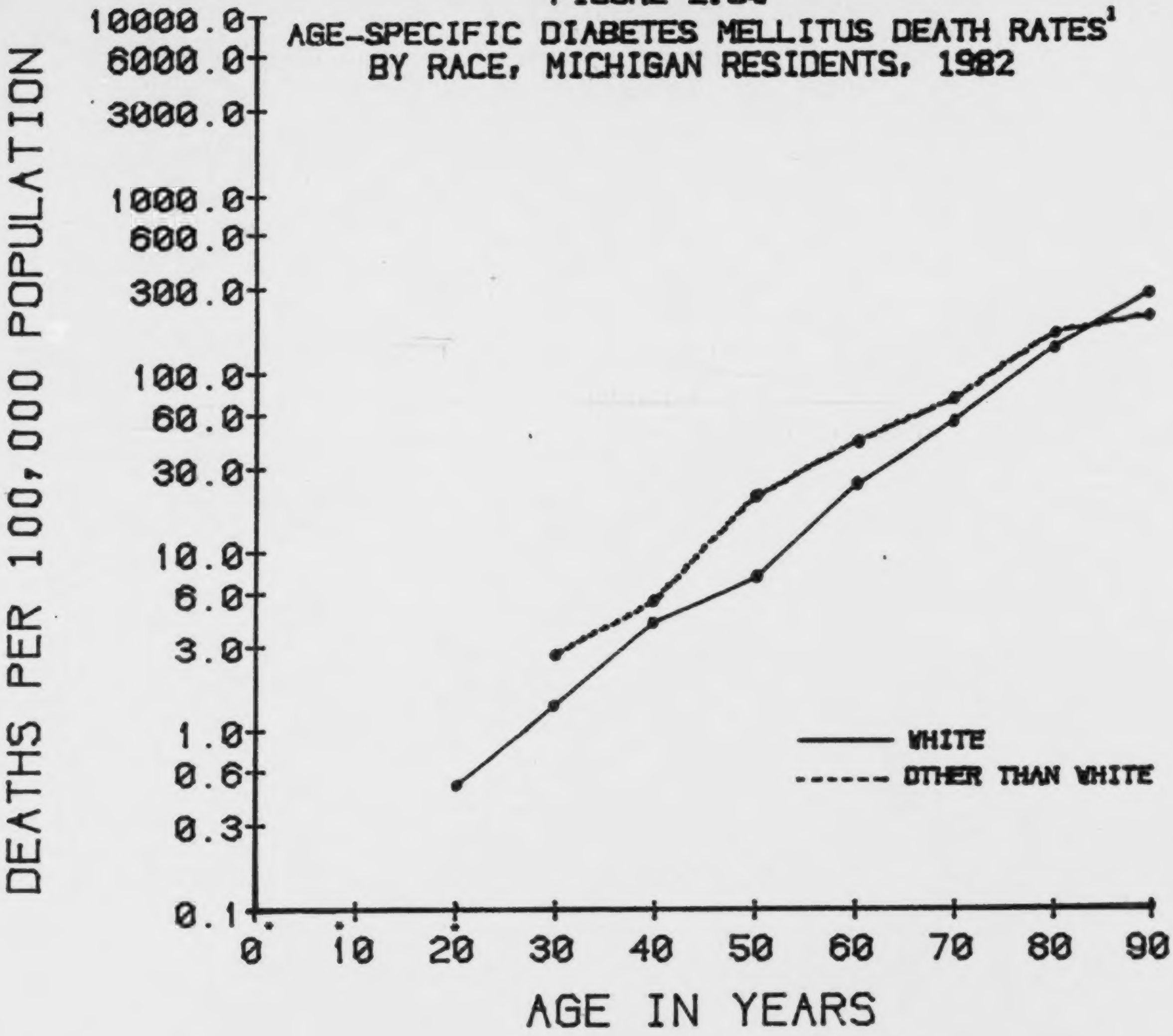

FIGURE 2.34
AGE-SPECIFIC DIABETES MELLITUS DEATH RATES[1]
BY RACE, MICHIGAN RESIDENTS, 1982

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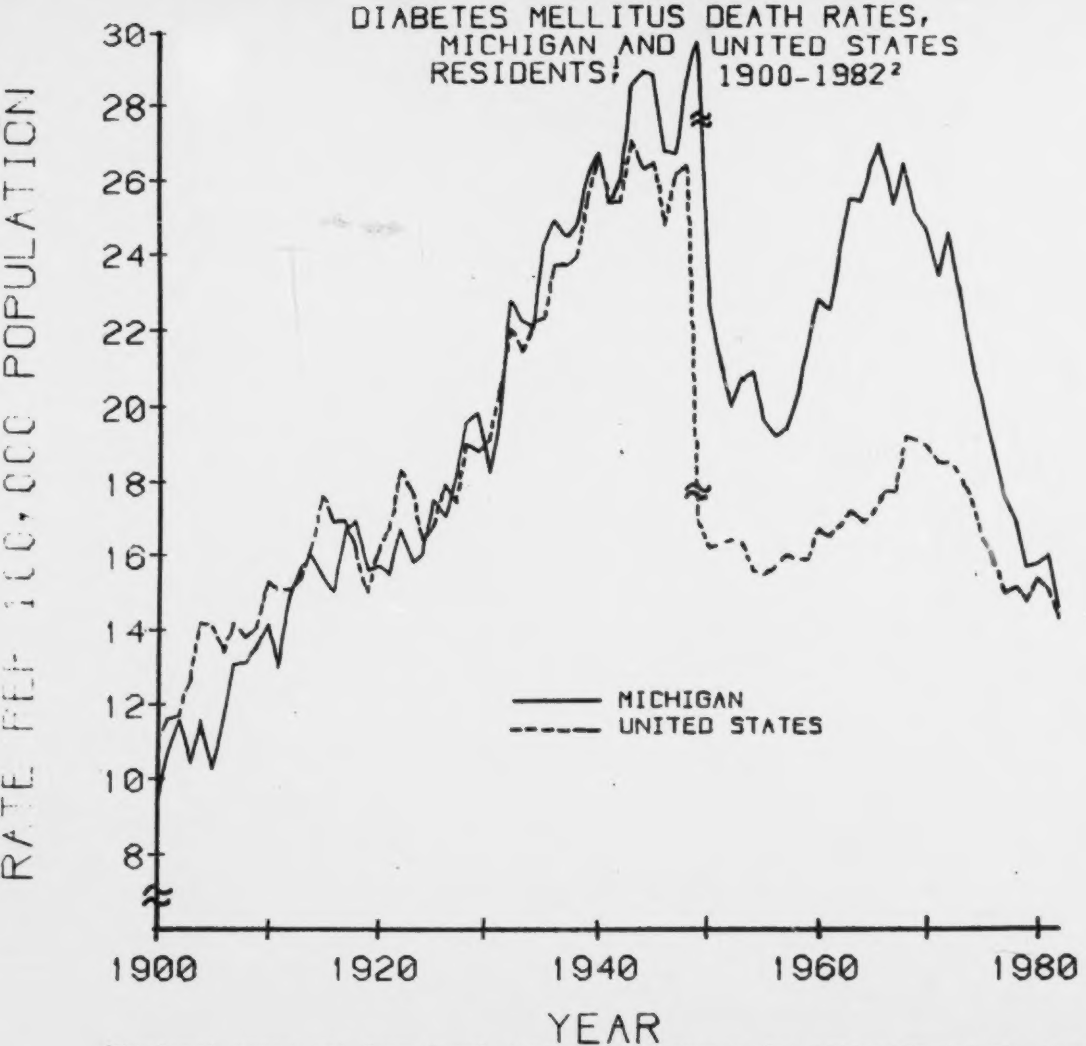
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.35

DIABETES MELLITUS DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1982[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] The comparability of diabetes mellitus death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .55. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of diabetes mellitus death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

The national range in diabetes mellitus death rates in the first half of this century was from 11.0 in 1900 to 27.1 in 1943. The rate for the nation since 1949, though more stable than Michigan's rate, has tended to follow the same pattern. A peak of 19.2 was reached in 1968. Since that time the rate for the nation has declined by 25.5 percent to a provisional 14.3 in 1982.

The diabetes mellitus death rate for the nation was generally above Michigan's rate for the first 25 or so years in this century. Since 1942, Michigan's rate has been above that of the nation. Through the 1960's the differential between the rates for Michigan and the United States was quite large. This has only recently started to diminish. In 1982 Michigan's rate (14.6) was 2.1 percent above the provisional rate of 14.3 for the United States.

Age-adjusted death rates for diabetes mellitus for the years 1970-1982 are presented in Table 2.38. These rates have generally declined both in Michigan and the United States for all population groups. The rate for the total population of Michigan has declined by 50.5 percent since 1970, and has fallen or remained the same each year since 1972. The rate for the U.S. declined by 34.8 percent between 1970 and 1982. In Michigan, rates for other than white persons experienced a greater absolute and relative decline than those for white persons. In 1970 the age-adjusted rate for other than white males was 46 percent above that for white males. In 1982 the differential was 23.8 percent. In 1970 the rate for other than white females was over twice that of white females. This differential was still 71.9 percent in 1982.

The declines in the age-adjusted rates for other than white persons were much greater in Michigan than those observed for these groups nationally. Michigan's rates for other than white persons were substantially higher than comparable rates for the nation in 1970, but were lower than those for the nation in 1980. Age-adjusted rates for white persons in Michigan also declined more sharply than comparable rates for the nation. However, they remained higher than those of the nation throughout the period.

In 1982 78.3 percent of all diabetes mellitus deaths were without mention of complication. Diabetes with peripheral circulatory disorders caused 81 deaths, while diabetes with renal manifestations resulted in an additional 75 deaths. There were 105 deaths in 1982 from diabetes with ketoacidosis or coma. These are deaths where a diabetic crisis was involved (Table 2.39).

At birth, the probability of eventual death due to diabetes mellitus is 0.015 for males and 0.024 for females (Figure 2.36). The probability of death from diabetes

Table 2.38
Age-Adjusted Diabetes Mellitus Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	20.2	20.8	19.8	18.8	19.9	17.7	34.3	29.1	3[illegible].4
	1971	18.9	17.4	20.1	17.5	16.6	18.1	31.0	23.6	37.5
	1972	19.6	18.7	20.2	18.2	17.7	18.5	31.7	27.2	35.8
	1973	18.0	17.4	18.2	16.7	16.4	16.8	27.9	25.1	30.1
	1974	16.2	16.0	16.3	15.7	15.8	15.6	19.6	17.2	21.7
	1975	14.9	14.8	14.9	14.2	14.3	14.0	20.6	19.3	21.8
	1976	13.8	13.7	13.8	12.8	12.7	12.7	22.1	21.8	22.4
	1977	12.9	13.3	12.5	12.2	12.7	11.6	19.1	18.5	19.7
	1978	12.1	12.3	11.8	11.1	11.8	10.4	20.0	16.1	23.0
	1979	11.2	11.1	11.2	10.8	11.3	10.3	14.2	10.1	17.5
	1980	11.2	11.0	11.3	10.5	10.6	10.4	16.1	13.9	17.9
	1981	11.1	11.8	10.7	10.5	11.3	9.8	16.0	15.2	16.7
	1982	10.0	10.4	9.7	9.5	10.1	8.9	14.0	12.5	15.3
U.S.	1970	14.1	13.5	14.4	12.9	12.7	12.8	25.2	20.4	29.3
	1971	13.7	13.2	14.0	12.3	12.4	12.2	25.6	20.3	30.0
	1972	13.5	13.1	13.7	12.2	12.2	12.0	25.9	21.1	29.7
	1973	13.0	12.8	13.1	11.7	11.9	11.5	25.0	21.0	28.2
	1974	12.4	12.1	12.6	11.2	11.4	11.0	23.1	18.7	26.5
	1975	11.4	11.3	11.4	10.3	10.6	10.0	21.3	17.8	23.9
	1976	10.9	10.8	10.9	9.8	10.0	9.5	20.5	17.4	22.9
	1977	10.2	10.3	10.1	9.2	9.7	8.8	19.0	16.2	21.2
	1978	10.2	10.3	10.0	9.2	9.7	8.8	18.5	16.2	20.2
	1979	9.8	10.0	9.5	8.8	9.3	8.3	18.1	16.1	19.5
	1980	10.1	10.2	10.0	9.1	9.5	8.7	18.8	16.4	20.6
	1981	9.9[3]	---	---	---	---	---	---	---	---
	1982	9.2[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Provisional.

Table 2.39
Deaths Due to Diabetes Mellitus by Detailed Cause, Michigan Residents, 1982

ICD LIST' NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
250.0	Diabetes Mellitus without Mention of Complication	1,055	78.3
250.6	Diabetes with Peripheral Circulatory Disorders .	81	6.0
250.3	Diabetes with Renal Manifestations	75	5.6
250.1	Diabetes with Ketoacidosis	61	4.5
250.2	Diabetes with Coma	44	3.3
250.7	Diabetes with Other Specified Manifestations . .	23	1.7
250.5	Diabetes with Neurological Manifestations	5	0.4
250.4	Diabetes with Ophthalmic Manifestations	3	0.2
	Total	1,347	100.0

'Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

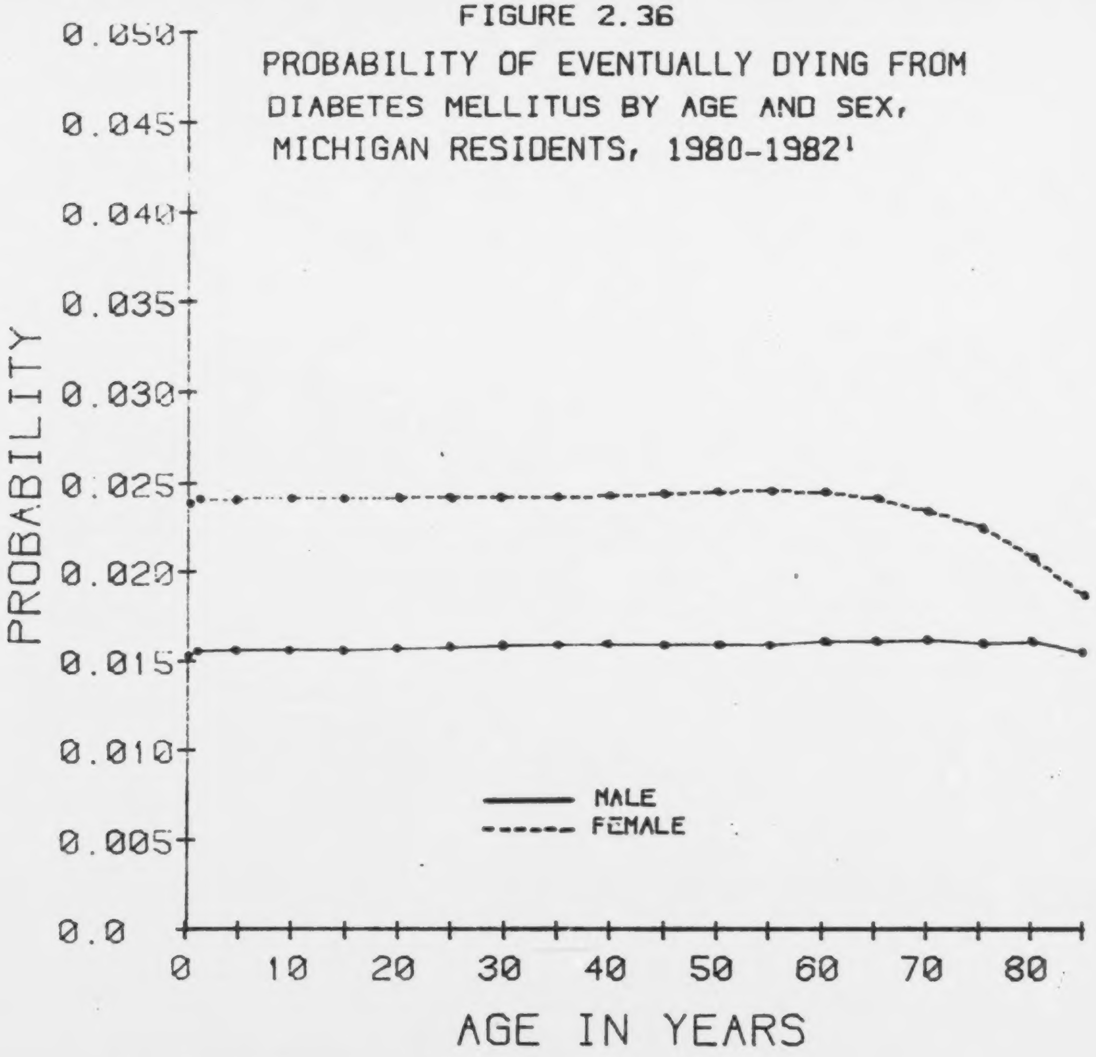

FIGURE 2.36

PROBABILITY OF EVENTUALLY DYING FROM DIABETES MELLITUS BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1] mellitus for females increases slightly from birth to age 60 and declines after that age. Females are less likely to eventually die from this cause at ages 70 and older than when they were born. Probabilities for males are consistently below those for females, but decline less in the older ages. The peak probability for males is 0.016 at age 60.

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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

ATHEROSCLEROSIS

There were a total of 1,284 Michigan resident deaths attributed to atherosclerosis in 1982, making this cause the 8th leading cause of death in the state. Atherosclerosis is the term under the 9th Revision (adopted in 1979) for the category most nearly comparable to arteriosclerosis under the 8th Revision. Of the deaths due to this cause in 1982 62.1 percent were to females, while 46.0 percent of all deaths were to females. Only 63 of the 1,284 deaths were to other than white persons. This is 4.9 percent of all atherosclerosis deaths, while 13.5 percent of all deaths were to other than white persons.

The majority of the atherosclerosis deaths were to persons of advanced ages. The median age of all deaths resulting from this disease was 85 years. The median age at death for males was 5 years lower than that for females, and the median for other than white persons was 6 years lower than that for white persons (Table 2.40).

Atherosclerosis resulted in 13.9 deaths per 100,000 Michigan residents in 1982. This represents a 1.5 percent increase from the rate of 13.7 in 1981. Deaths to females from this disease were relatively more frequent than for males with crude mortality rates of 16.8 and 10.8 respectively (Table 2.41). The age-adjusted rate for males, however, was 28.1 percent higher than that for females. Age-specific atherosclerosis death rates rose sharply beyond age 74 for persons of both sexes. Rates for males were above those for females in all age groups below age 85 with a sufficient number of events to calculate rates (Figure 2.37).

The crude rate for deaths due to atherosclerosis for white persons was 3.7 times that for other than white persons. However, when the differing age distributions of the two groups are considered, the differential is greatly reduced. The age-adjusted rate of 6.6 for whites is 1.7 times the rate of 3.9 for other than white persons (Figure 2.38).

Inspection of arteriosclerosis death rates since 1900 is far less informative than study of the historical data for other causes of death. The classification of this disease has been significantly altered several times since the inception of the ICD codes (see footnote of Figure 2.39). What can be seen in Figure 2.39 is a strong rise between 1900 and 1912. Rates in Michigan and the nation then stabilized and began declining. A coding revision in 1930 then breaks comparability with 1929 rates. The arteriosclerosis death rates from 1930 through 1948 show no clear direction. From 1950 through 1967 the rates for the nation held fairly stable while in Michigan the rates

Table 2.40
Deaths Due to Atherosclerosis by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-
30-34	1	-	1	1	-	1	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	7	6	1	5	4	1	2	2	-	-	-	-
50-54	7	5	2	6	4	2	1	1	-	-	-	-
55-59	8	4	4	6	3	3	2	1	1	-	-	-
60-64	21	15	6	20	14	6	1	1	-	-	-	-
65-69	48	28	20	44	25	19	4	3	1	-	-	-
70-74	93	59	34	87	55	32	6	4	2	-	-	-
75-79	173	78	95	160	73	87	13	5	8	-	-	-
80-84	245	99	146	231	92	139	14	7	7	-	-	-
85-89	308	96	212	303	96	207	5	-	5	-	-	-
90+	373	97	276	358	94	264	15	3	12	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1284	487	797	1221	460	761	63	27	36	-	-	-
Median Age At Last Birthday	85	82	87	86	83	87	80	78	84	*	*	*

Table 2.41
Atherosclerosis Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	13.9	10.8	16.8	15.7	12.1	19.2	4.3	3.9	4.7
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	*	*	*	*	*	*	*	*	*
25-34 Years	*	*	*	*	*	*	*	*	*
35-44 Years	*	*	*	*	*	*	*	*	*
45-54 Years	1.6	2.5	*	1.4	2.1	*	*	*	*
55-64 Years	3.3	4.6	2.1	3.3	4.6	2.2	*	*	*
65-74 Years	24.7	35.0	16.8	25.8	36.2	17.8	15.9	25.4	*
75-84 Years	149.1	169.9	136.9	154.2	176.9	141.0	101.1	110.2	94.8
85 Years and Over	783.6	734.0	805.2	823.1	786.9	838.7	303.0	*	382.1
Age-Adjusted Rate[2]	6.4	7.3	5.7	6.6	7.6	5.9	3.9	4.5	3.3

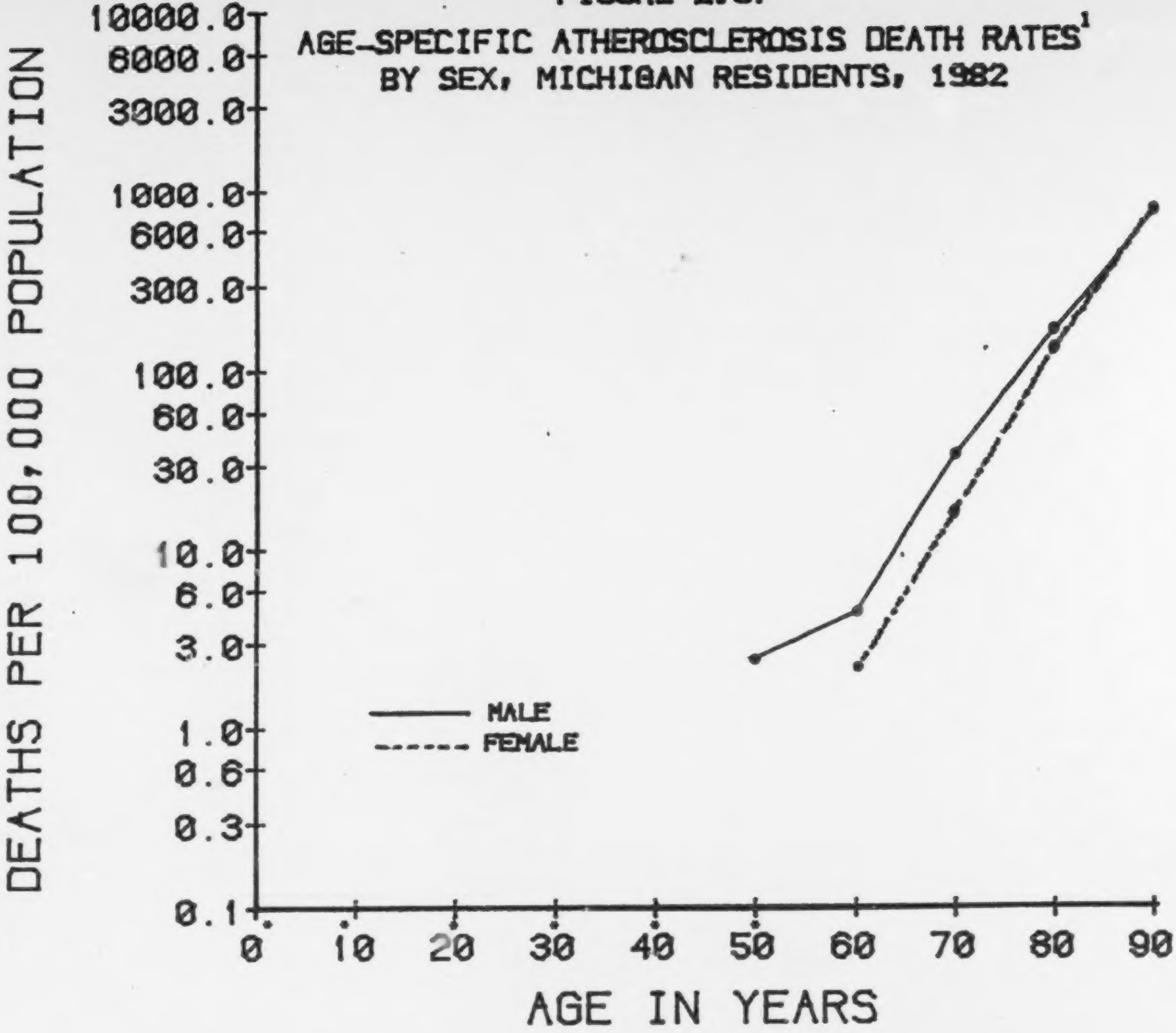
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

FIGURE 2.37

AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1982

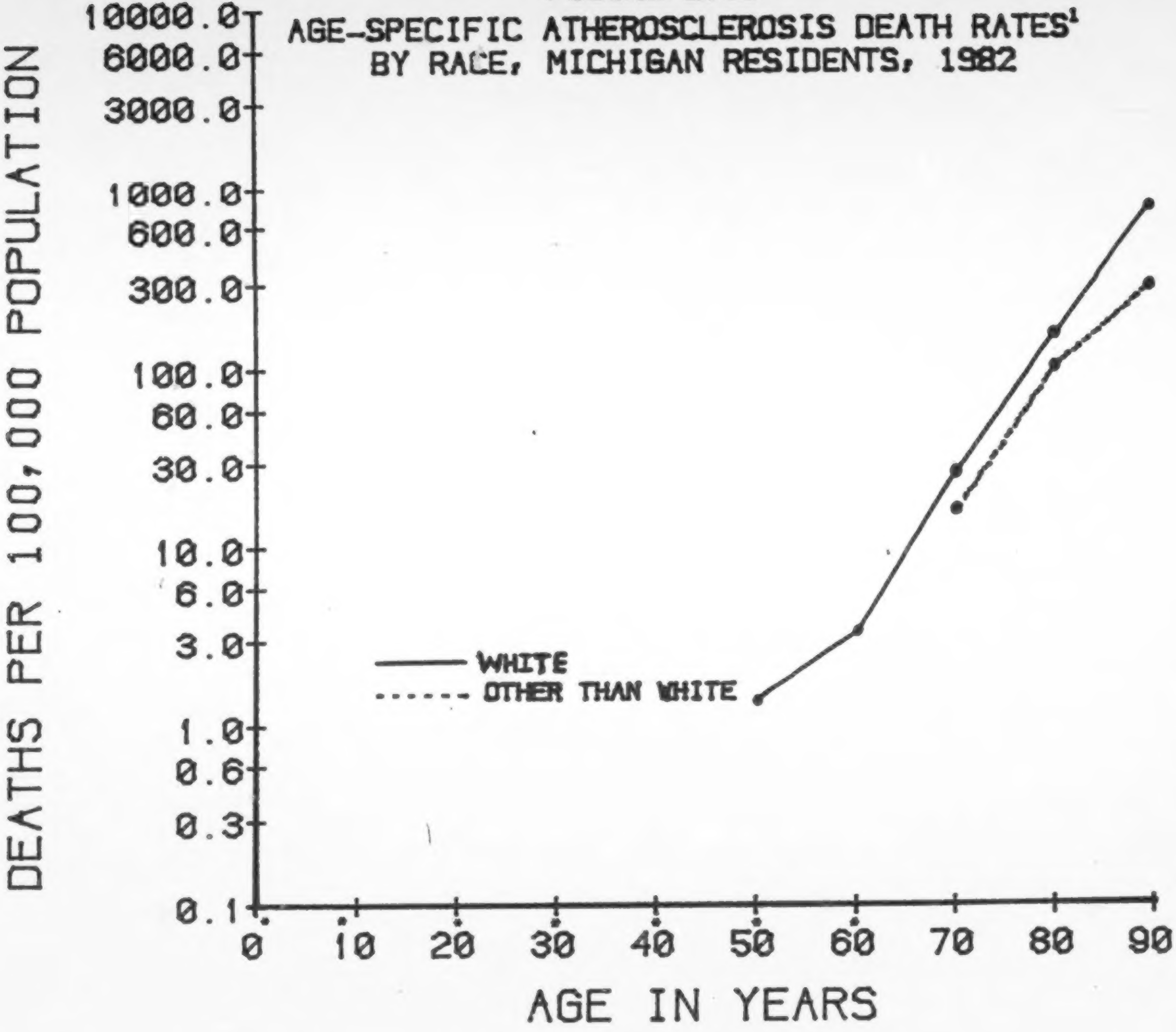


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.38

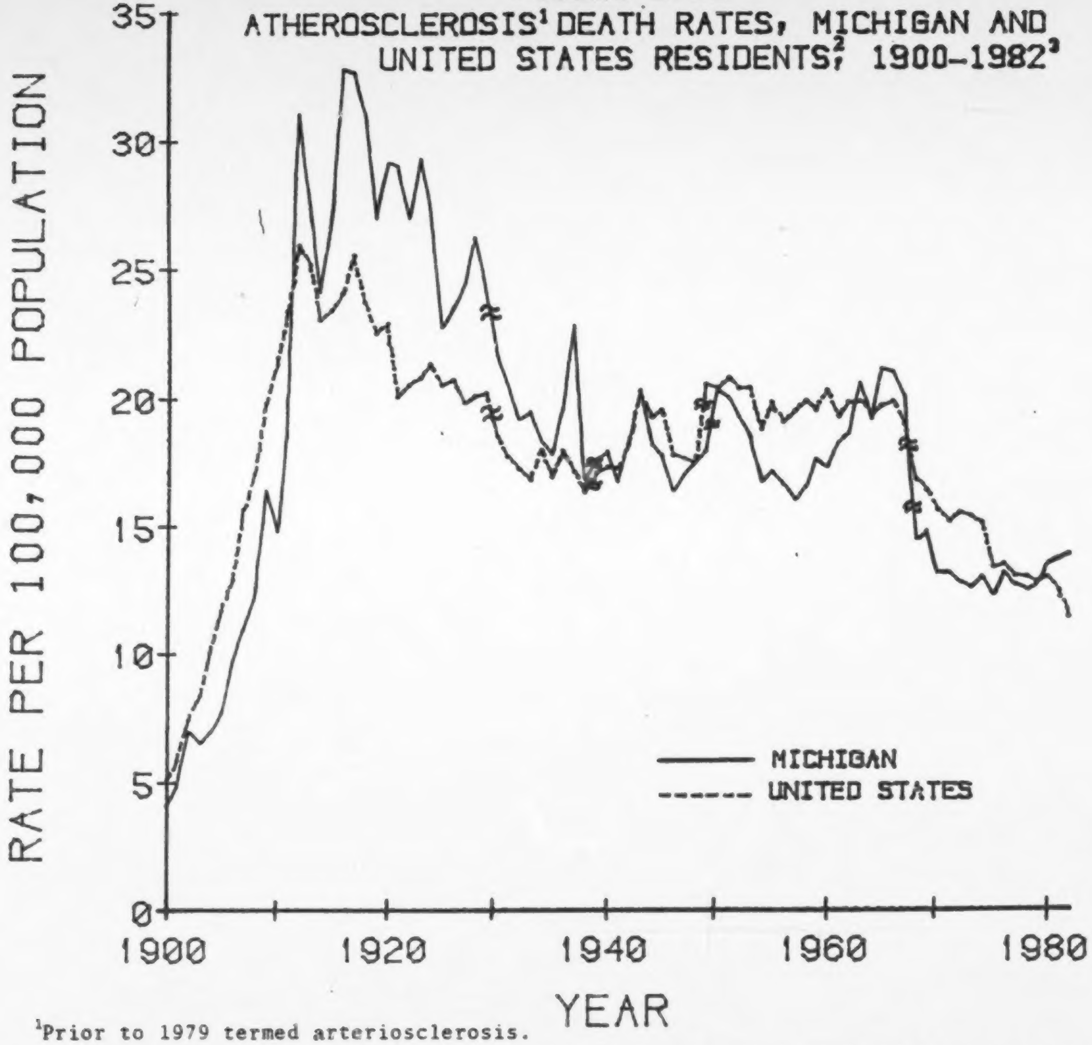
AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1]
BY RACE, MICHIGAN RESIDENTS, 1982



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.39
ATHEROSCLEROSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS;[2] 1900-1982[3]



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[1] Prior to 1979 termed arteriosclerosis.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Although Michigan and United States atherosclerosis death rates are comparable for any given year, changes in the International Classification of Diseases over the years have made historic comparison of these rates extremely difficult. Comparability breaks are especially pronounced in the 1930, 1939, 1949 and 1968 revisions. Analysis of atherosclerosis death rates over the time period 1900-1982 requires detailed study to maintain comparability.

dropped and then returned to national levels. From 1968 through 1979 the death rates due to arteriosclerosis in Michigan were below national rates. Since 1980 the Michigan rate has exceeded the national rate. In 1982 the Michigan rate of 13.9 exceeded by 20.9 percent the provisional rate of 11.5 for the nation.

Age-adjusted atherosclerosis death rates have declined for all population groups in both Michigan and the United States since 1970 (Table 2.42). The rates for white Michigan residents were quite similar to those for the nation, while Michigan's rates for other than white persons were substantially below the comparable rates for the nation (see Technical Notes). Rates for other than white persons were markedly lower than those for white persons in Michigan but roughly similar across the nation.

Nearly all atherosclerosis deaths are reported as generalized and/or unspecified as to type. Only 73 of the 1,284 deaths were in other classifications. Of these, 69 were attributed to atherosclerosis of arteries of the extremities (Table 2.43).

The 1980 through 1982 mortality data for Michigan indicate that females are more likely to eventually die from atherosclerosis than males. At birth, the likelihood for females is 0.029, while for males it is 0.015. These probabilities rise slowly through age 50 and increase rapidly beyond that age. By age 85, the probability of eventually dying from atherosclerosis is 0.055 for females and 0.041 for males (Figure 2.40).

Table 2.42
Age-Adjusted Atherosclerosis Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	8.1	8.9	7.4	8.2	9.1	7.5	6.2	6.3	5.9
	1971	7.9	9.0	7.1	8.2	9.3	7.3	4.5	4.6	4.4
	1972	7.4	8.7	6.4	7.6	9.0	6.6	4.0	4.0	4.0
	1973	7.2	8.4	6.3	7.5	8.8	6.5	3.9	3.4	4.4
	1974	7.3	8.1	6.7	7.6	8.5	6.9	3.9	3.9	3.9
	1975	6.7	7.5	6.0	6.9	7.8	6.2	4.1	4.9	3.4
	1976	7.0	8.4	6.0	7.3	8.9	6.2	2.8	3.3	2.5
	1977	6.6	7.5	6.0	6.9	7.8	6.2	3.4	3.4	3.5
	1978	6.4	7.2	5.8	6.6	7.4	6.0	4.0	4.7	3.5
	1979	6.3	7.1	5.7	6.4	7.2	5.8	5.2	6.1	4.5
	1980	6.6	7.5	6.0	6.7	7.8	6.1	5.2	5.4	5.0
	1981	6.3	7.1	5.7	6.6	7.5	6.0	3.3	3.8	2.9
	1982	6.4	7.3	5.7	6.6	7.6	5.9	3.9	4.5	3.3
U.S.	1970	8.4	9.5	7.5	8.4	9.6	7.5	8.2	9.1	7.5
	1971	8.1	9.2	7.4	8.1	9.3	7.3	7.8	8.3	7.3
	1972	8.2	9.3	7.4	8.1	9.2	7.3	8.4	9.6	7.4
	1973	7.9	8.9	7.2	7.9	8.9	7.2	7.7	8.5	7.1
	1974	7.5	8.5	6.8	7.5	8.6	6.8	7.3	8.2	6.5
	1975	6.5	7.4	5.8	6.5	7.4	5.9	6.1	7.0	5.3
	1976	6.3	7.2	5.7	6.4	7.3	5.7	5.7	6.3	5.2
	1977	6.1	7.0	5.4	6.1	7.1	5.4	5.6	6.5	5.0
	1978	5.9	6.8	5.2	5.9	6.8	5.3	5.5	6.3	4.9
	1979	5.7	6.5	5.0	5.6	6.5	5.0	5.6	6.3	5.1
	1980	5.7	6.6	5.0	5.6	6.5	5.0	5.9	6.8	5.2
	1981	5.2[4]	---	---	---	---	---	---	---	---
	1982	4.8[4]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] The introduction in 1979 of the 9th Revision of the International Classification of Diseases, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 1.0649. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

[4] Provisional.

Table 2.43
Deaths Due to Atherosclerosis by Detailed Cause, Michigan Residents, 1982

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
440.9	Generalized and Unspecified Atherosclerosis .	1,211	94.3
440.2	Atherosclerosis of Arteries of the Extremities	69	5.4
440.0	Atherosclerosis of Aorta	3	0.2
440.1	Atherosclerosis of Renal Artery	1	0.1
	Total	1,284	100.0

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

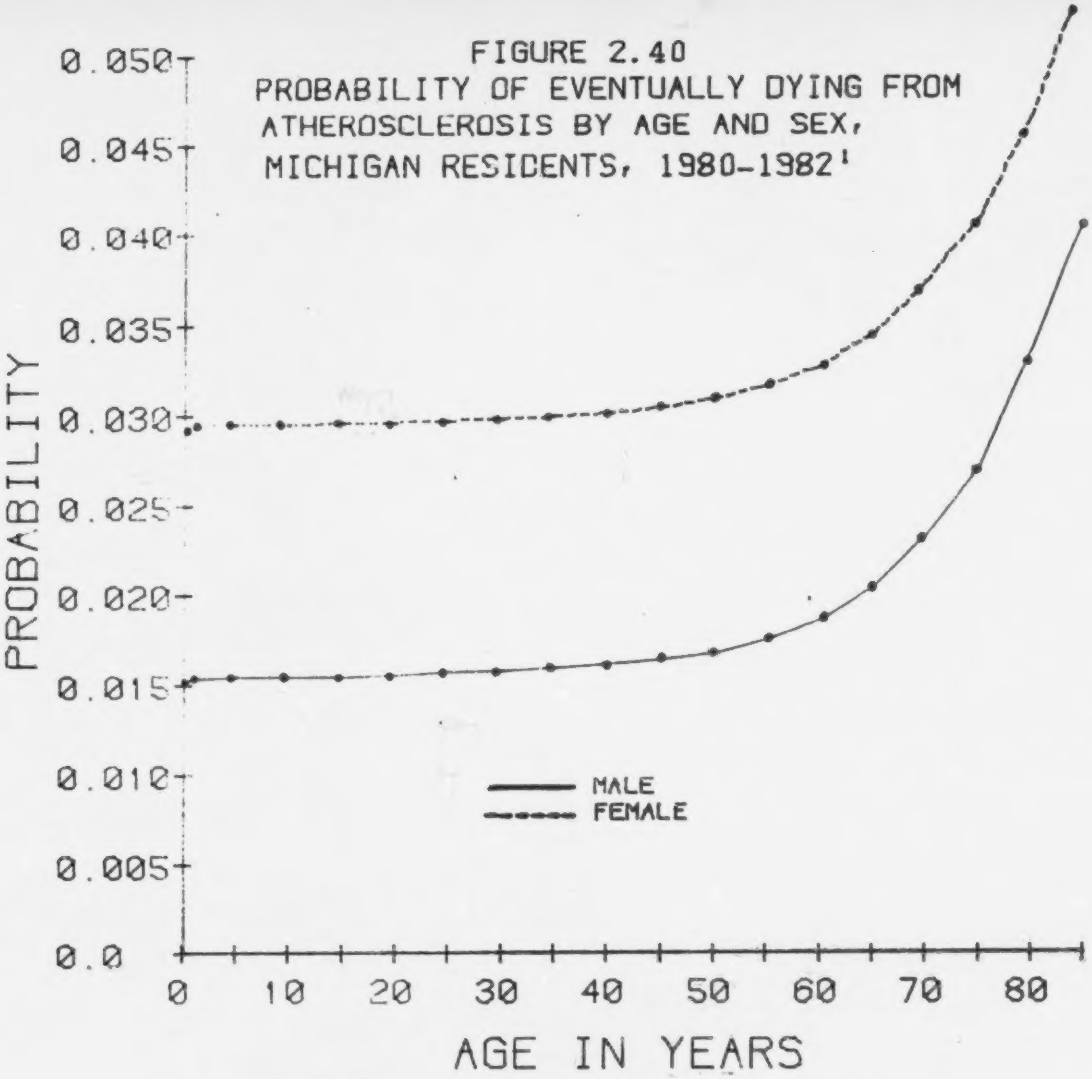

FIGURE 2.40
PROBABILITY OF EVENTUALLY DYING FROM ATHEROSCLEROSIS BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]

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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC LIVER DISEASE AND CIRRHOSIS

The 9th leading cause of Michigan resident deaths in 1982 was chronic liver disease and cirrhosis. This category was termed cirrhosis of the liver prior to 1979. There were 1,244 deaths attributed to this category in 1982, of which 65.4 percent were to males.

The median age for deaths due to chronic liver disease and cirrhosis (58 years) was 14 years below that for deaths from all causes (Table 2.44). For deaths from this cause in 1982 the median age was 58 years for both males and females. The median ages at death for white males and females were 60 and 61 years, respectively. For other than white males and females the median ages at death were 50 and 53 years, respectively.

Death rates for chronic liver disease and cirrhosis by age, race, and sex are presented in Table 2.45. In 1982 the crude rate for males was twice that for females. The age-adjusted rate for males was 2.2 times that for females. Age-specific rates for males ranged from 1.8 to 2.6 times those for females (Figure 2.41). The highest rate for males was for the age group 65-74 years (72.3).

The crude mortality rate for deaths due to chronic liver disease and cirrhosis for other than white persons was 62.6 percent higher than that for white persons and the age-adjusted rate for other than white persons was 2.3 times the rate for white persons. The largest relative differential occurred in the 25-34 year age group, where the rate for other than white persons was 6.0 times that for white persons. The highest age-specific rate for white persons was 46.3 deaths per 100,000 population in the age group 65-74 years. For other than white persons the peak rate (62.5) was observed for the age group 45-54 years (Figure 2.42).

Cirrhosis of the liver was the cause of death for 7.9 of every 100,000 Michigan residents in 1900. Death rates due to this cause rose to a peak of 13.1 in 1916, after which the relative frequency of cirrhosis deaths fell sharply, dropping to 7.4 in 1919. The Michigan rates held stable from this point until 1936 when they began increasing slowly. A peak of 12.4 was reached by 1948. The statistics for Michigan shown in Figure 2.43 after 1949 are not comparable with preceding years due to a revision of the underlying cause of death determination. By isolating the period 1950-1982, this problem can be ignored. Michigan's mortality rate for this disease doubled between 1950 and 1972, when the highest rate of the century was recorded (19.7). The rate of 13.5 in 1982 was 31 percent below the rate of 1972.

Table 2.44
Deaths Due to Chronic Liver Disease and Cirrhosis by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	3	2	1	3	2	1	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	2	-	2	-	-	-	2	-	2	-	-	-
25-29	21	15	6	8	6	2	13	9	4	-	-	-
30-34	37	22	15	19	11	8	18	11	7	-	-	-
35-39	68	49	19	27	21	6	41	28	13	-	-	-
40-44	74	48	26	47	33	14	27	15	12	-	-	-
45-49	108	67	41	78	45	33	30	22	8	-	-	-
50-54	169	112	57	124	85	39	45	27	18	-	-	-
55-59	180	122	58	145	99	46	35	23	12	-	-	-
60-64	170	120	50	142	102	40	28	18	10	-	-	-
65-69	169	113	56	146	101	45	23	12	11	-	-	-
70-74	101	67	34	89	62	27	12	5	7	-	-	-
75-79	87	47	40	78	43	35	9	4	5	-	-	-
80-84	39	21	18	33	18	15	6	3	3	-	-	-
85-89	15	8	7	14	8	6	1	-	1	-	-	-
90+	1	-	1	1	-	1	-	-	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1244	813	431	954	636	318	290	177	113	-	-	-
Median Age At Last Birthday	58	58	58	60	60	61	51	50	53	*	*	*

Table 2.45
Death Rates for Deaths Due to Chronic Liver Disease and Cirrhosis, by Age, Race, and Sex[1]. Michigan Residents, 1982

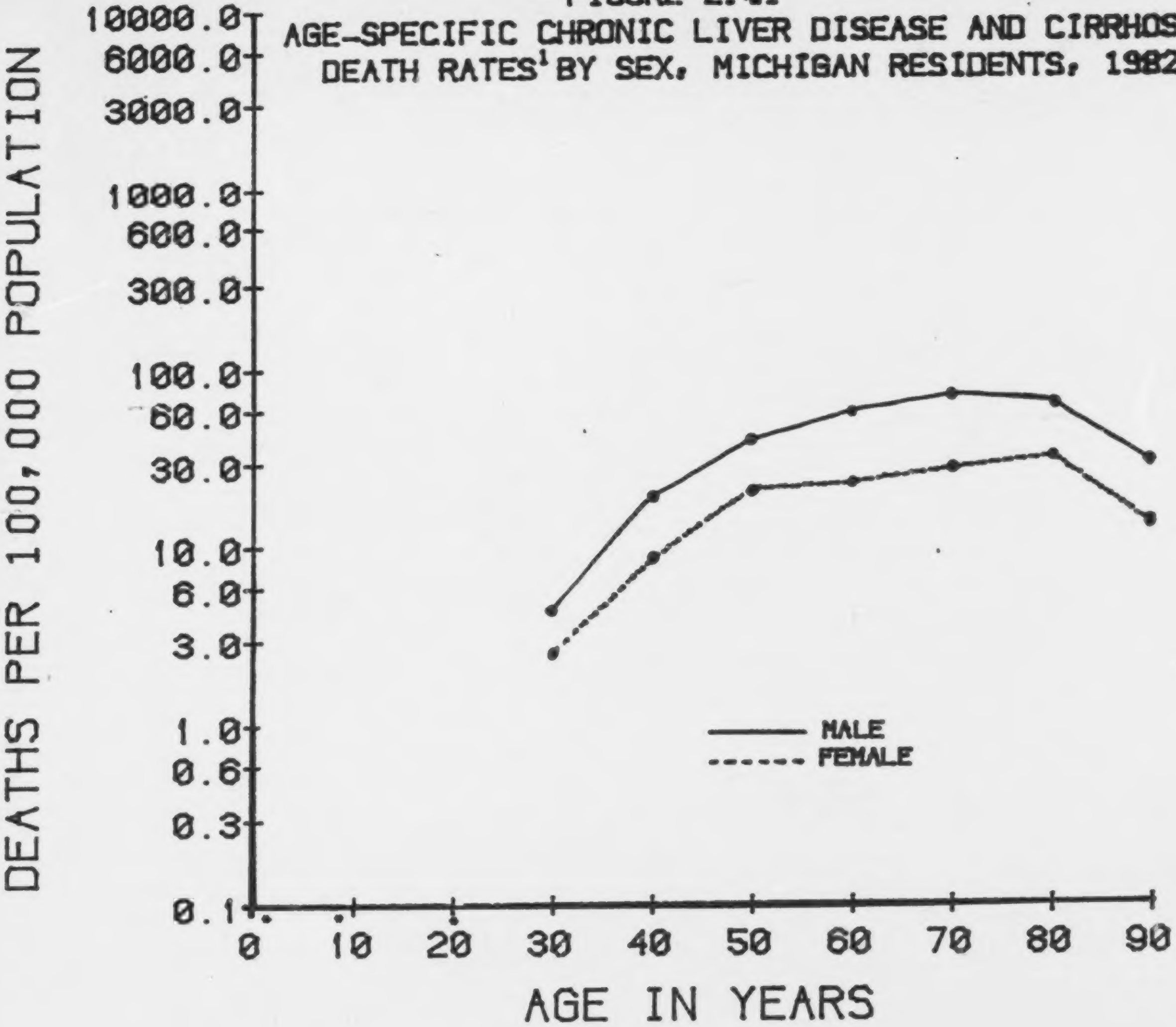
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	13.5	18.1	9.1	12.3	16.7	8.0	20.0	25.5	14.9
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	*	*	*	*	*	*	*	*	*
25-34 Years	3.6	4.7	2.6	2.0	2.5	1.5	11.9	16.6	7.9
35-44 Years	13.9	19.3	8.7	8.4	12.4	4.5	47.1	63.7	32.6
45-54 Years	30.8	40.9	21.2	25.9	34.0	18.1	62.5	89.4	39.9
55-64 Years	39.7	58.3	23.2	36.9	54.8	20.9	61.2	85.4	40.1
65-74 Years	47.4	72.3	28.0	46.3	73.7	25.2	55.7	61.6	51.1
75-84 Years	45.0	65.3	32.9	43.8	65.4	31.2	56.1	64.3	50.5
85 Years and Over	18.4	30.4	13.2	18.7	33.1	12.5	*	*	*
Age-Adjusted Rate[2]	12.5	17.7	8.0	10.6	15.4	6.5	24.6	33.0	17.4

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

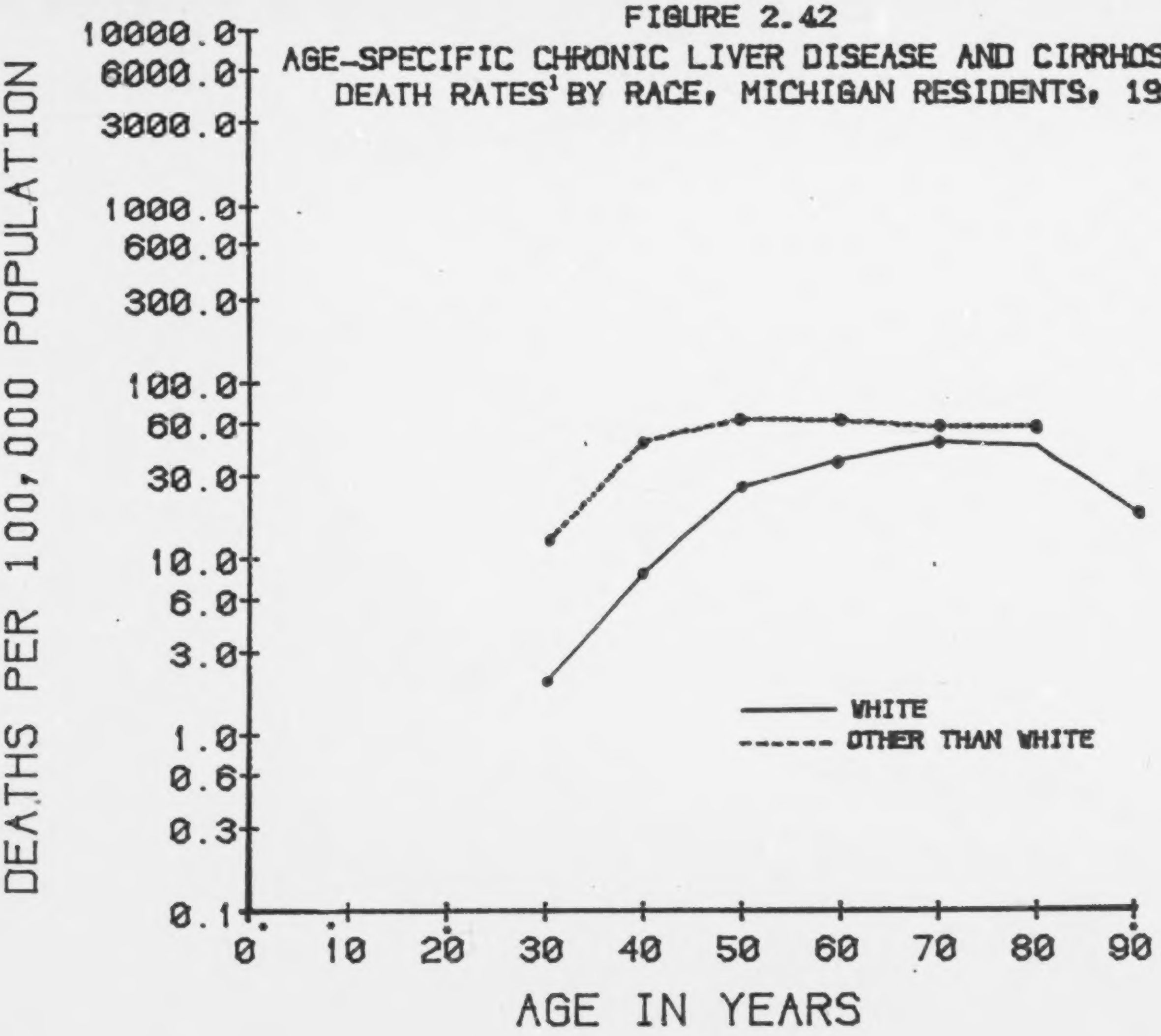
FIGURE 2.41
AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1982



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.42
AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1982



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[1] Note that death reates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

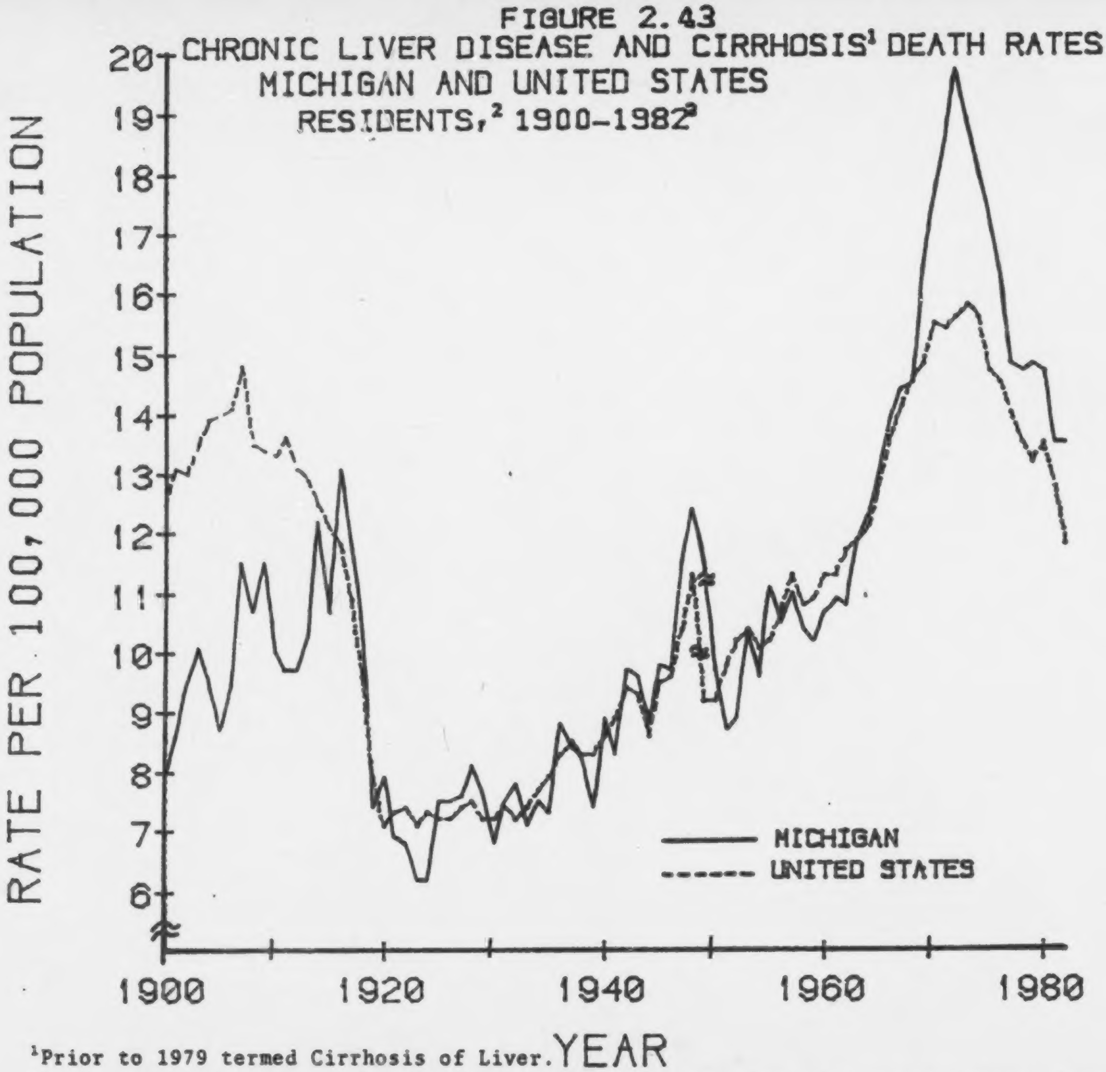

FIGURE 2.43
CHRONIC LIVER DISEASE AND CIRRHOSIS[1] DEATH RATES
MICHIGAN AND UNITED STATES
RESIDENTS,[2] 1900-1982[3]

[1] Prior to 1979 termed Cirrhosis of Liver.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] The comparability of cirrhosis of the liver death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .80. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cirrhosis of the liver death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

The cirrhosis of the liver mortality rate for the United States was well above Michigan's rate early in this century. The highest rate for the nation during the first half of the century occurred in 1907 (14.8). The rates for Michigan and the nation were similar from about 1916 through 1968. Between 1968 and 1972, rates for Michigan rose above those for the nation. The sharp drop in Michigan's rate since 1972 has brought the statistic for the state closer to the national figure. In 1982 the chronic liver disease and cirrhosis death rate of 13.5 for Michigan was 14.4 percent above the provisional rate of 11.8 for the nation.

Age-adjusted death rates by sex and race for chronic liver disease and cirrhosis for the years 1970-1982 are recorded in Table 2.46 (see Technical Notes). These rates generally peaked about 1972 in Michigan and have tended to decline since then. For the U.S. the increases observed in the early part of the decade were less pronounced, as were the declines after that time. The rates in Michigan for other than white males have been substantially higher than for all other groups, including the rates for other than white males observed nationally. The rates for other than white females in Michigan have also been considerably higher than the comparable rates for the nation. Rates for white males in Michigan were higher than rates for white males nationally throughout the decade. Rates for white females in Michigan were higher than for their counterparts in the nation at the beginning of the decade. In recent years the rates for the two groups have been similar. The age-adjusted rate for the total population of Michigan in 1982 was 20.2 percent above the provisional rate for the United States.

Cirrhosis of the liver without mention of alcohol was the most frequently reported cause of deaths due to chronic liver disease and cirrhosis in 1982, resulting in 679 deaths (Table 2.47). The second largest category was alcoholic cirrhosis of the liver with 282 deaths. There were 70 deaths attributed to other chronic nonalcoholic liver disease. Including deaths due to alcoholic cirrhosis of the liver, alcoholic fatty liver, acute alcoholic hepatitis, and unspecified alcoholic liver damage, there were 436 deaths with mention of alcohol attributed to the category of chronic liver disease and cirrhosis.

The probability of eventually dying from chronic liver disease and cirrhosis, based upon Michigan mortality data from the years 1980-1982, is displayed in Figure 2.44 by age and sex. This graph reveals that the risk for males of dying from a disease in this category is roughly double that for females. At birth, males have a probability of 0.018 of eventually dying from chronic liver disease and cirrhosis. For females the probability is 0.009. These probabilities remain nearly constant for both sexes through age 40,

Table 2.46
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Liver Disease and Cirrhosis by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	17.7	24.9	11.2	15.6	22.0	9.7	34.8	48.3	22.5
	1971	18.7	25.6	12.3	16.2	22.2	10.8	37.4	52.8	23.6
	1972	19.8	27.8	12.5	17.0	24.5	10.3	40.7	54.2	28.5
	1973	18.8	26.7	11.7	16.3	23.3	10.1	37.0	52.7	23.0
	1974	17.9	25.8	10.8	14.8	21.5	8.7	40.9	58.2	25.4
	1975	17.1	23.9	11.1	14.4	20.3	9.2	36.2	50.2	23.8
	1976	15.9	23.0	9.6	13.6	19.9	8.1	31.9	45.5	19.8
	1977	14.5	20.6	9.1	12.1	17.7	7.2	30.6	41.2	21.2
	1978	14.2	19.6	9.3	12.1	16.9	7.9	28.5	39.1	19.3
	1979	14.2	21.1	8.2	11.5	17.2	6.4	32.5	47.8	19.3
	1980	14.1	19.7	9.1	11.7	16.6	7.3	29.7	41.4	19.6
	1981	12.6	17.8	8.1	10.8	15.6	6.7	24.4	32.6	17.4
	1982	12.5	17.7	8.0	10.6	15.4	6.5	24.6	33.0	17.4
U.S.	1970	14.7	20.2	9.8	13.4	18.8	8.7	23.8	31.3	17.4
	1971	14.6	20.2	9.7	13.5	18.9	8.7	23.4	31.0	16.9
	1972	14.9	20.8	9.6	13.5	19.0	8.5	25.3	35.0	17.1
	1973	15.0	20.8	9.8	13.6	19.3	8.7	25.1	33.7	17.9
	1974	14.7	20.6	9.6	13.4	19.0	8.5	24.8	33.9	17.2
	1975	13.7	19.4	8.8	12.5	17.8	7.9	22.9	32.0	15.3
	1976	13.5	19.0	8.6	12.2	17.4	7.7	22.9	32.1	15.1
	1977	13.0	18.3	8.3	11.7	16.6	7.4	22.2	31.2	14.7
	1978	12.4	17.5	8.0	11.2	16.0	7.1	20.7	29.0	13.9
	1979	12.0	17.0	7.7	11.0	15.6	7.0	19.7	28.2	12.8
	1980	12.2	17.1	7.9	11.0	15.7	7.0	20.0	28.1	13.5
	1981	11.5[3]	---	---	---	---	---	---	---	---
	1982	10.4[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Provisional.

Table 2.47
Deaths Due to Chronic Liver Disease and Cirrhosis by Detailed Cause, Michigan Residents, 1982

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
571.5	Cirrhosis of Liver Without Mention of Alcohol	679	54.6
571.2	Alcoholic Cirrhosis of Liver	282	22.7
571.0	Alcoholic Fatty Liver	75	6.0
571.8	Other Chronic Nonalcoholic Liver Disease . .	70	5.6
571.3	Alcoholic Liver Damage, Unspecified	53	4.3
571.4	Chronic Hepatitis	28	2.3
571.1	Acute Alcoholic Hepatitis	26	2.1
571.6	Biliary Cirrhosis	25	2.0
571.9	Unspecified Chronic Liver Disease Without Mention of Alcohol	6	0.5
	Total	1,244	100.0

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

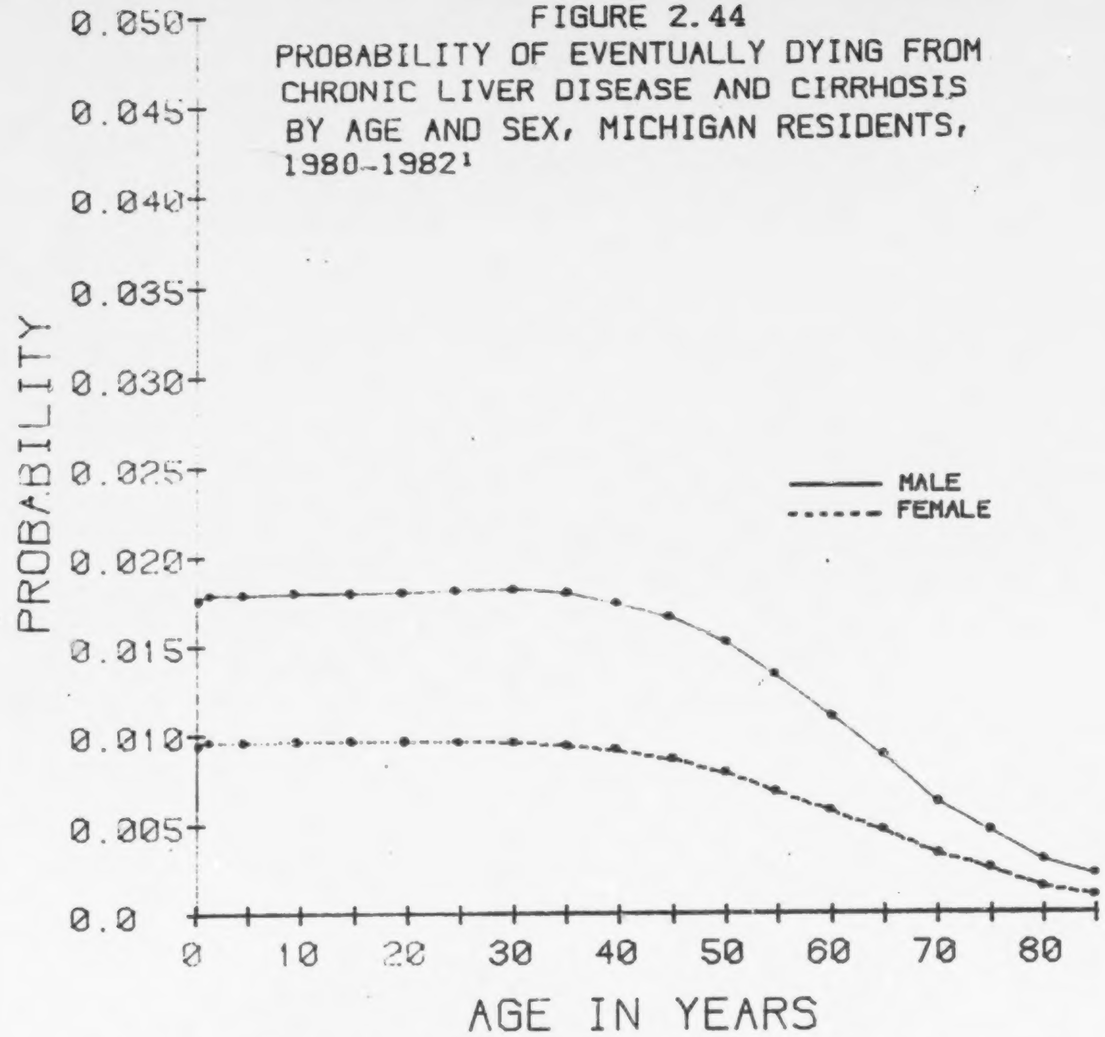

FIGURE 2.44
PROBABILITY OF EVENTUALLY DYING FROM CHRONIC LIVER DISEASE AND CIRRHOSIS BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]

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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

whereupon the threat of death due to these diseases diminishes with advancing age. By age 85 the risk is 0.002 for males and 0.001 for females.

SUICIDE

There were a total of 1,103 suicide deaths in 1982, making suicide the 10th leading cause of death. Of the deaths resulting from suicide 76.4 percent were to males. 90.7 percent of all suicide deaths were to white persons.

Fifty percent of all suicide deaths occurred at or below the age of 39. The median age at death for males was 38 years, 6 years below that for females. The median ages at death for white males and females were 39 and 45 years respectively. For other than white males the median age at death was 28 years and for other than white females 27 years. There were 164 suicide deaths of white persons 65 years of age or older. This is 16.4 percent of all suicide deaths of white persons. Among persons of other races there were 4 suicide deaths at age 65 or over or 4.0 percent of the total(Table 2.48).

The crude suicide death rate in 1982 was 12.0 per 100,000 population. The crude rate for males (18.8) was 3.4 times that for females (5.5). Age-specific rates for males were higher in all age groups (Table 2.49 and Figure 2.45). While suicide rates for males were highest among men from 25-34 years and those aged 65 or older, the rates for females were highest from age 35 through 64 and declined in the older age groups. The greatest relative differential by sex was in the 15-24 year age group where the rate for males was 6.6 times that for females.

.The crude suicide death rate for the white population was 89.7 percent higher than that for the other than white population. The age-adjusted rate for white persons was 78.3 percent higher than that for other than white persons. Age-specific rates by race from Table 2.49 are displayed in Figure 2.46. Age-specific rates for white persons were greater than those for other than white persons in all categories with sufficient events to calculate rates.

There is strong similarity in both the trend and magnitude of suicide death rates for Michigan and the United States in this century (Figure 2.47). There were two complete cycles of rising then falling rates in the period 1900 through 1944. The rates then held fairly stable for about 20 years. Between 1964 and 1977 the suicide death rate increased by 39 percent in Michigan, reaching 14.0, the highest rate since 1938. The highest rate during this century for Michigan was 18.8 in 1931, while the lowest was the rate of 8.8 in 1900. For the nation high and low rates were observed in 1932 (17.4) and in 1957 (9.8). In 1982 the provisional rate for the United States was 11.7, compared to Michigan's rate of 12.0.

Age-adjusted suicide death rates by race and sex for

Table 2.48
Deaths Due to Suicide by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	12	11	1	9	8	1	3	3	-	-	-	-
15-19	74	58	16	62	49	13	12	9	3	-	-	-
20-24	133	122	11	111	101	10	21	20	1	1	1	-
25-29	143	110	33	123	96	27	19	14	5	1	-	1
30-34	109	87	22	94	77	17	14	10	4	1	-	1
35-39	96	68	28	90	64	26	5	3	2	1	1	-
40-44	75	54	21	69	50	19	6	4	2	-	-	-
45-49	67	44	23	63	40	23	4	4	-	-	-	-
50-54	84	59	25	82	57	25	2	2	-	-	-	-
55-59	81	59	22	75	55	20	6	4	2	-	-	-
60-64	61	42	19	58	40	18	3	2	1	-	-	-
65-69	57	42	15	55	40	15	2	2	-	-	-	-
70-74	41	31	10	40	30	10	1	1	-	-	-	-
75-79	34	28	6	34	28	6	-	-	-	-	-	-
80-84	22	15	7	22	15	7	-	-	-	-	-	-
85-89	9	9	-	9	9	-	-	-	-	-	-	-
90+	5	4	1	4	3	1	1	1	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1103	843	260	1000	762	238	99	79	20	4	2	2
Median Age At Last Birthday	39	38	44	40	39	45	28	27	*	*	*	*

Table 2.49
Suicide Death Rates by Age, Race, and Sex[1], Michigan Residents, 1982

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	12.0	18.8	5.5	12.9	20.1	6.0	6.8	11.4	2.6
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.6	1.1	*	0.6	1.0	*	*	*	*
15-24 Years	11.4	19.7	3.0	11.4	19.6	3.0	11.2	20.2	*
25-34 Years	15.8	25.0	6.8	16.4	25.9	6.9	12.7	19.9	6.4
35-44 Years	16.7	24.3	9.4	18.2	26.5	10.2	7.6	10.4	*
45-54 Years	16.8	23.6	10.4	18.6	25.4	12.1	5.0	10.9	*
55-64 Years	16.1	24.4	8.8	17.1	25.9	9.2	8.7	12.5	*
65-74 Years	17.2	29.3	7.8	18.7	31.6	8.7	*	*	*
75-84 Years	20.0	41.3	7.4	22.1	46.1	8.1	*	*	*
85 Years and Over	16.1	49.4	*	16.2	49.7	*	*	*	*
Age-Adjusted Rate[2]	11.6	18.3	5.4	12.3	19.2	5.8	6.9	11.6	2.7

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,00 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

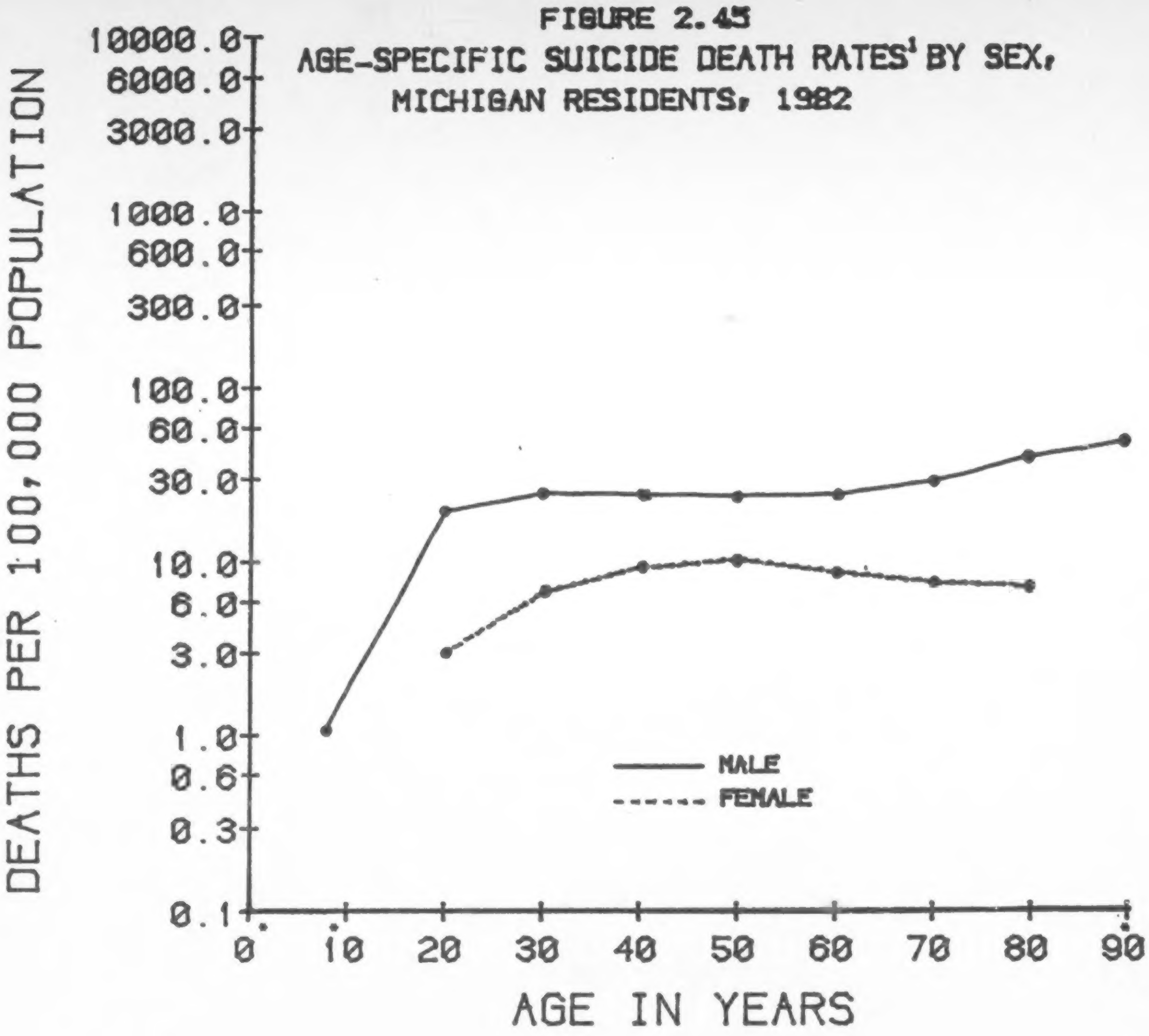
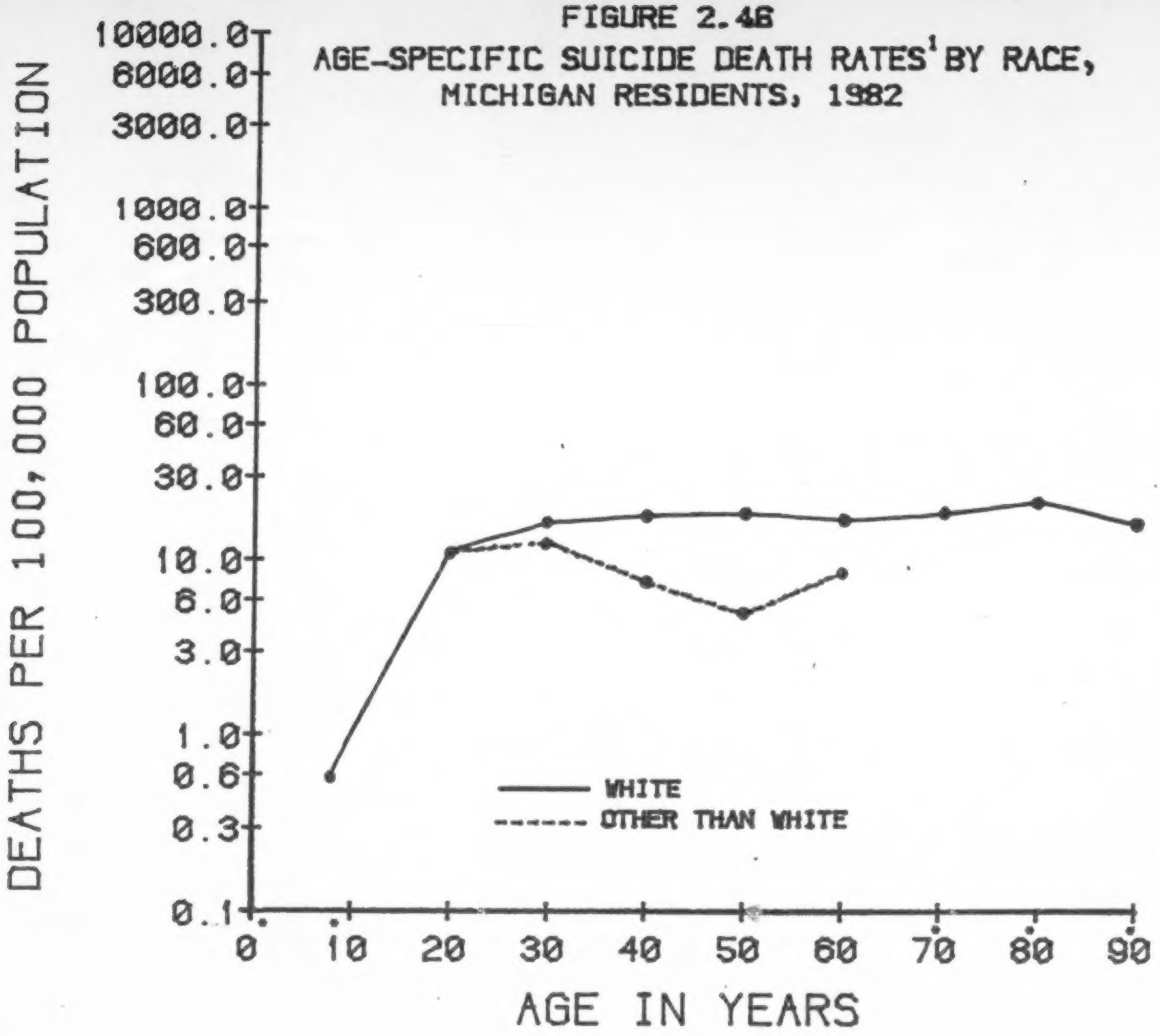


FIGURE 2.45
AGE-SPECIFIC SUICIDE DEATH RATES[1] BY SEX,
MICHIGAN RESIDENTS, 1982

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

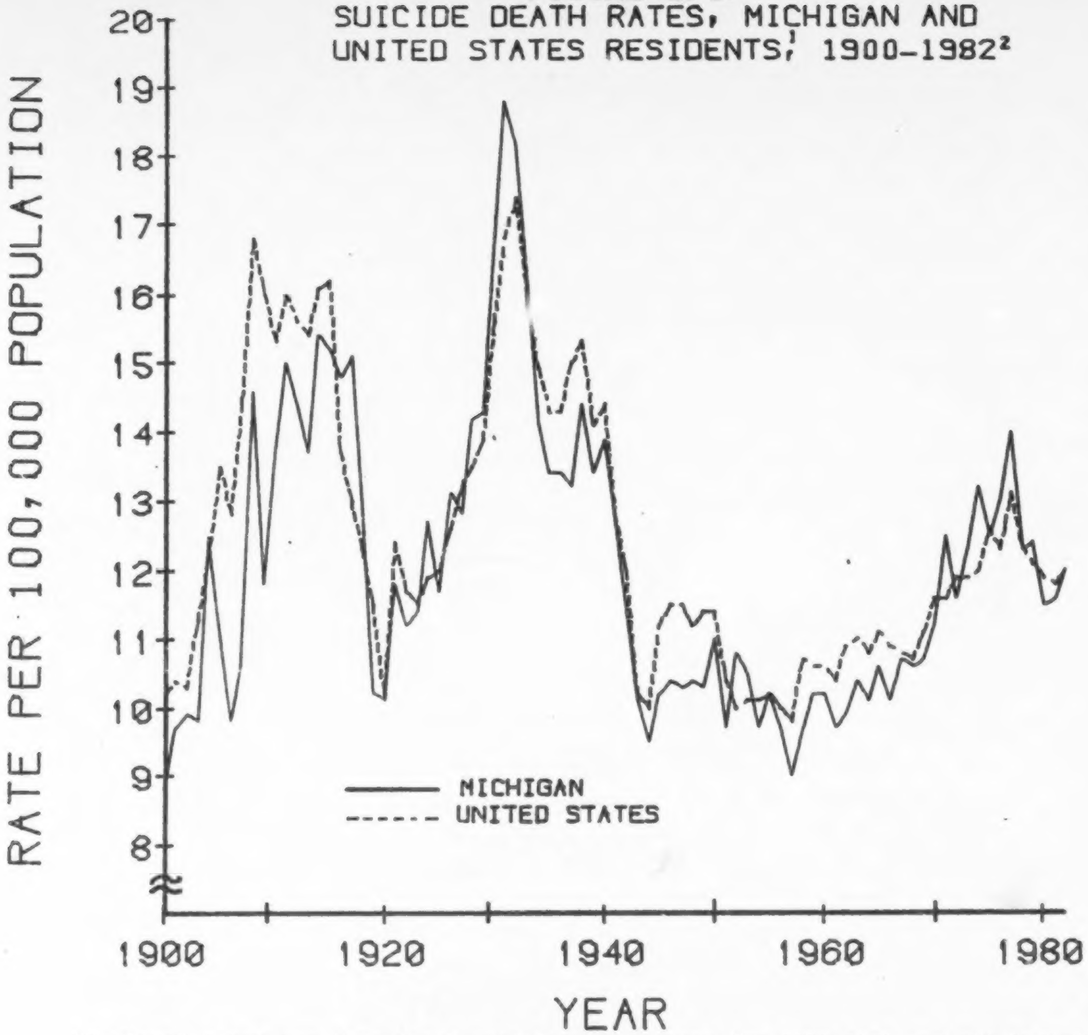
FIGURE 2.46
AGE-SPECIFIC SUICIDE DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1982



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.47
SUICIDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1982[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1982. United States rates for 1981 and 1982 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Suicide death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Michigan and the United States are presented in Table 2.50. For Michigan white females the age-adjusted rate for suicide remained quite stable from 1970 through 1977, and has since declined, while that for white males increased between 1970 and 1977, and has fallen in each of the last four years. The rates for other than white persons, though exhibiting no clear trend, were consistently below those of their white counterparts throughout the period. Rates for the nation were more stable. For white and other than white females the rates showed no clear trend. The rate for white males peaked in 1977, and the rate for other than white males increased by 27 percent between 1970 and 1979. The rates in Michigan for the other than white population were significantly higher than those of the nation. Rates in Michigan for the white population groups were similar to those of the nation. The age-adjusted rate for the total population of Michigan was at or above the comparable national rate each year from 1970 through 1982.

Suicides in Michigan were predominantly the result of one of four types of self-inflicted injury. Self-inflicted injury by firearms caused 542 deaths in 1982. Hanging, strangulation and suffocation resulted in 196 deaths. Self-inflicted poisoning by gases and vapors resulted in 176 deaths. There were 93 deaths due to poisoning by drugs, medicaments, and biologicals. Together these four types of suicide accounted for 91.3 percent of all suicide deaths to Michigan residents in 1982 (Table 2.51).

Using the Michigan mortality experience of 1980 through 1982, the chance of a male eventually dying from suicide is 0.014 at birth. The risk for females is 0.005. These probabilities hold relatively constant through age 20 then taper slowly with advancing age (Figure 2.48).

Table 2.50
Age-Adjusted Suicide Death Rates[1] by Race and Sex, Michigan and United States[2] Residents, 1970-1982

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	11.9	17.3	6.9	12.4	17.9	7.3	7.4	11.8	3.4
	1971	13.0	18.2	8.4	13.3	18.4	8.6	10.6	15.8	6.0
	1972	12.1	17.9	6.9	12.6	18.4	7.3	8.2	12.6	4.2
	1973	12.8	19.3	6.7	13.2	19.9	7.0	9.4	15.4	4.1
	1974	13.6	19.9	8.0	14.2	20.7	8.3	8.9	13.1	5.2
	1975	12.9	19.4	6.8	13.3	19.9	7.1	9.5	15.0	4.5
	1976	13.2	19.8	7.0	13.5	20.3	7.3	10.2	16.0	5.1
	1977	13.9	21.4	7.1	14.5	22.2	7.4	9.6	15.5	4.4
	1978	12.2	18.8	6.2	12.6	19.4	6.3	9.7	14.6	5.5
	1979	12.2	18.6	6.3	12.4	18.8	6.5	10.7	16.9	5.1
	1980	11.2	17.7	5.2	11.8	18.4	5.6	7.5	12.8	2.7
	1981	11.3	17.4	5.7	12.0	18.2	6.3	6.8	12.1	2.2
	1982	11.6	18.3	5.4	12.3	19.2	5.8	6.9	11.6	2.7
U.S.	1970	11.8	17.3	6.8	12.4	18.2	7.2	6.5	10.3	3.3
	1971	11.8	17.2	7.0	12.4	18.0	7.4	6.7	10.1	3.8
	1972	12.1	17.8	6.9	12.6	18.4	7.3	7.4	11.8	3.6
	1973	11.9	17.8	6.6	12.5	18.6	7.0	7.1	11.5	3.3
	1974	12.1	18.1	6.6	12.7	18.9	7.0	7.1	11.6	3.2
	1975	12.5	18.8	6.8	13.2	19.6	7.3	7.4	11.9	3.5
	1976	12.1	18.3	6.6	12.7	19.0	7.0	7.4	12.1	3.4
	1977	12.8	19.4	6.7	13.5	20.3	7.1	7.6	12.2	3.6
	1978	11.9	18.2	6.1	12.5	19.0	6.6	7.2	11.9	3.2
	1979	11.7	17.9	5.9	12.2	18.6	6.3	7.7	12.7	3.3
	1980	11.4	18.0	5.4	12.1	18.9	5.7	6.7	11.3	2.8
	1981	11.3[3]	---	---	---	---	---	---	---	---
	1982	11.5[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Provisional.

Table 2.51
Deaths Due to Suicide by Method,
Michigan Residents, 1982

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
269	Suicide by All Other and Unspecified Firearms . . .	542	49.1
267	Suicide by Hanging, Strangulation, and Suffocation .	196	17.8
266	Suicide by Gases and Vapors	176	16.0
264	Suicide by Drugs, Medicaments, and Biologicals . . .	93	8.4
270	Suicide by All Other Means and Late Effects of Self-Inflicted Injury	72	6.[illegible]
268	Suicide by Handgun	12	1.1
265	Suicide by Other Solid or Liquid Substances	12	1.1
	Total	1,103	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the *International Classification of Diseases*, WHO.

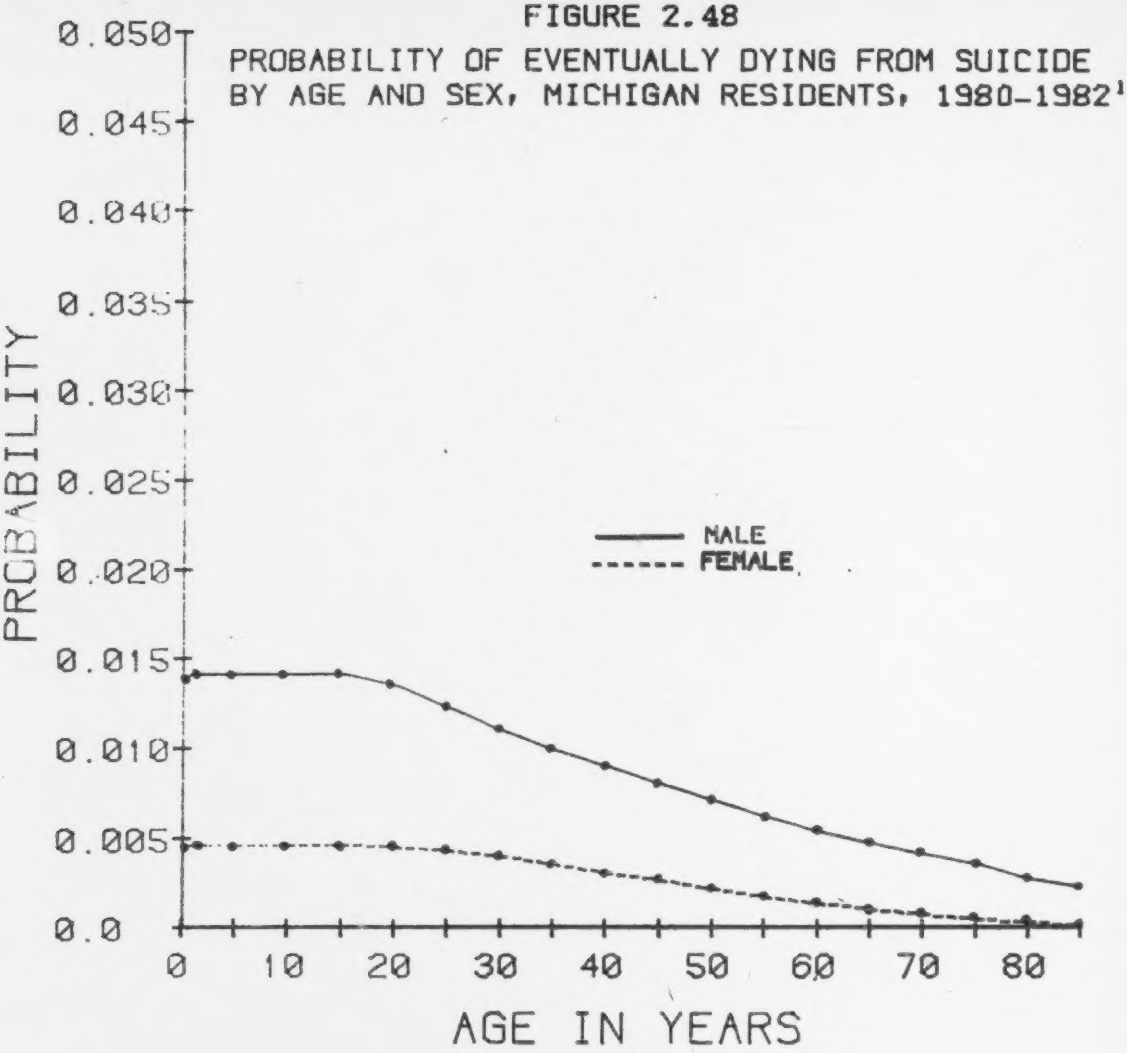

FIGURE 2.48

PROBABILITY OF EVENTUALLY DYING FROM SUICIDE BY AGE AND SEX, MICHIGAN RESIDENTS, 1980-1982[1]

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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

THE PROBABILITY OF EVENTUAL DEATH DUE TO A SPECIFIED CAUSE

While cause-specific death rates are useful in gauging the frequency of death due to certain causes and in making comparisons between areas or populations, they do not relate the risk that the condition imposes on the population with clarity. Mortality data can be used to develop this risk in probabilistic terms. Through the application of life expectancy techniques, a probability of death due to a given cause can be estimated. Such probabilities represent the average risk of eventual death being caused by a specified condition under an assumption that the mortality across all ages that was observed in a time period will remain unchanged through the remaining life of the population. These probabilities can be estimated for any given age attained. The following table relates the probability at birth of dying from the ten leading causes of death based upon Michigan mortality experience for the years 1980 through 1982.

DISEASE CATEGORY	PROBABILITY AT BIRTH OF EVENTUAL DEATH DUE TO CONDITION FOR:	
	Males	Females
Diseases of the Heart	.421	.437
Malignant Neoplasms	.213	.187
Cerebrovascular Diseases	.070	.114
Accidents and Adverse Effects	.040	.022
Chronic Obstructive Pulmonary Diseases and Allied Conditions	.039	.019
Pneumonia and Influenza	.026	.027
Diabetes Mellitus	.015	.024
Atherosclerosis	.015	.029
Chronic Liver Disease and Cirrhosis	.018	.009
Suicide	.014	.005
All Other Causes	.129	.125
Total	1.000	1.000

The 1980 through 1982 data would indicate that 87.1 percent of all males and 87.5 percent of all females in Michigan will die from one of the ten leading causes if all things remain constant. Approximately four of every ten people will die from heart disease. Women face higher risks of death from heart disease, cerebrovascular disease, diabetes mellitus, and atherosclerosis than do males. At the same time, males are more likely to die from cancer, accidents, chronic obstructive pulmonary diseases and allied conditions, chronic liver disease and cirrhosis, and suicide.

Related to the probability at birth of eventual death due to a given cause is the hypothetical gain in life expectancy that would result if a given cause of death were eliminated. Based on 1980-1982 mortality data, the average number of years of life gained by eliminating deaths due to a major cause is given in the table that follows. Deaths in infancy from all causes are added for comparative purposes.

DISEASE CATEGORY ELIMINATED	YEARS GAINED IN LIFE EXPECTANCY FOR: Males	YEARS GAINED IN LIFE EXPECTANCY FOR: Females
Diseases of the Heart	4.89	3.34
Malignant Neoplasms	2.76	2.78
Cerebrovascular Diseases	0.55	0.73
Accidents and Adverse Effects	1.18	0.54
Chronic Obstructive Pulmonary Diseases and Allied Conditions	0.35	0.21
Pneumonia and Influenza	0.20	0.16
Diabetes Mellitus	0.16	0.23
Atherosclerosis	0.07	0.08
Chronic Liver Disease and Cirrhosis	0.33	0.20
Suicide	0.39	0.15
All Causes of Infant Mortality	0.99	0.85

The largest gains in life expectancy would result from the elimination of heart disease and cancer, the two leading causes of death. Considering the number of deaths involved, relatively large gains in life expectancy would result from the elimination of infant mortality, accidents, and suicide. Eliminating deaths in the younger age groups, where many of the deaths from these causes occur, has a greater impact on the potential number of years of life to be gained than eliminating deaths in the older age groups.

INFANT DEATHS

Of the 75,536 deaths occurring to Michigan residents in 1982, 1,672 occurred to individuals less than one year of age. The number of infant deaths declined steadily each year from 1958 through 1980, with the single exception of 1970. This frequency held steady in 1981 then declined again in 1982. Since 1970 the frequency of infant deaths has declined by 52.1 percent when there were 3,492 such deaths (Table 2.52). Nationally, the number of infant deaths in 1982 was 41,700 (provisional). This was 44.2 percent below the number in 1970.

The rate of death for infants under the age of one year has dropped considerably since 1900. In that year there were 157.1 infant deaths for every 1,000 live births. This means that about 16 of every 100 infants did not survive their first year. This rate fell below 100 by 1914 (96.8), to less than 70 by 1927 (67.7), and to less than 50 by 1937 (47.8). During the 1940's the Michigan infant death rate declined from 40.6 in 1940 to 28.9 in 1949. Relative declines in rate slowed considerably in the 1950's and 1960's. It was not until 1971 that the rate dropped below 20 to 19.5. The rate of decline between 1970 and 1980 compares favorably with the rate of decline observed before 1950. In 1982, the Michigan infant mortality rate was 12.1 (Figure 2.49). This follows an increase of 3.1 percent from the 1980 rate in 1981.

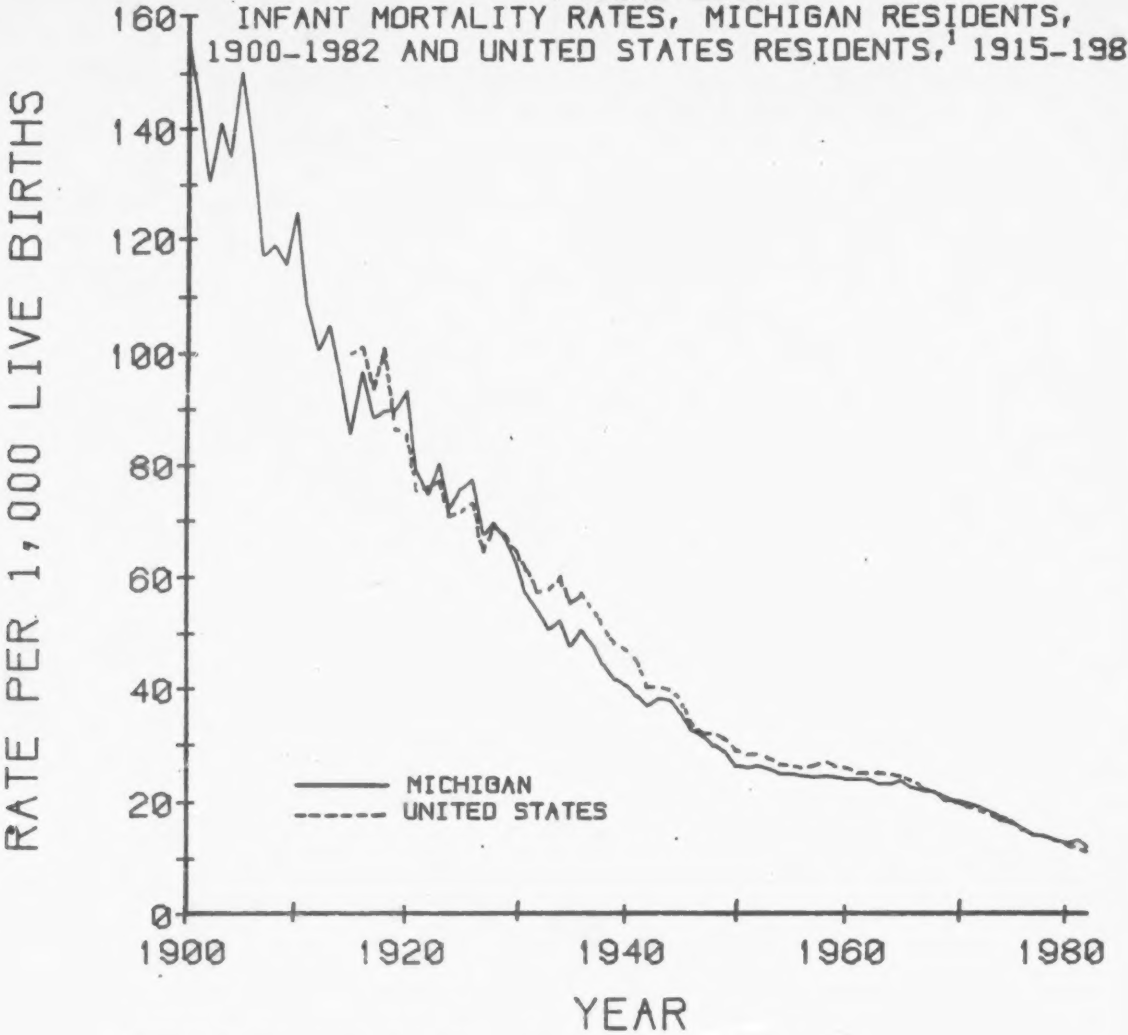
During the period 1915-1928, the rate for Michigan was above that for the United States 9 of 14 years. From 1929 through 1969, Michigan's infant death rate was consistently below the national statistic. From 1970 through 1975 the infant mortality rate in Michigan was slightly higher than the rate for the nation. From 1976 through 1980 the rates for the state and nation were similar. The provisional rate for the United States in 1982 was 11.2. The rate for Michigan is 8.0 percent above this rate.

Table 2.53 shows the numbers of infant deaths and infant death rates by age at death for the period 1970-1982. The number of infants that died during the first day of life in 1982 (751) is greater than the number of deaths of infants aged 7-364 days (637). 71.9 percent of all infant deaths occurred within the first month of life in 1982, and 61.9 percent occurred in the first week. These percentages were 76.8 and 70.5 percent in 1970. A review of Table 2.53 reveals that the 40.4 percent decline in the infant mortality rate since 1970 stems largely from reductions in the rate of death for those less than 7 days of age. The death rate for infants during their first day of life has declined 31.7 percent since 1970, while the death rate for ages 1-6 days has declined by 67.7 percent over the last twelve years. In contrast, the death rate for infants aged

Table 2.52
Infant Deaths and Infant Mortality Rates, Michigan and United States Residents, 1970-1982

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
74,667	20.0	1970	3,492	20.3
67,981	19.1	1971	3,157	19.5
60,182	18.5	1972	2,801	19.1
55,581	17.7	1973	2,561	18.1
52,776	16.7	1974	2,387	17.4
50,525	16.1	1975	2,205	16.5
48,265	15.2	1976	1,978	15.1
46,975	14.1	1977	1,945	14.1
45,945	13.8	1978	1,931	13.9
45,665	13.1	1979	1,921	13.3
45,526	12.6	1980	1,851	12.8
42,700Pr.	11.7Pr.	1981	1,851	13.2
41,700Pr.	11.2Pr.	1982	1,672	12.1

FIGURE 2.49
INFANT MORTALITY RATES, MICHIGAN RESIDENTS, 1900-1982 AND UNITED STATES RESIDENTS,[1] 1915-1982



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[1] United States rates for 1981 and 1982 are provisional.

Table 2.53
Infant Deaths and Mortality Rates by Age at Death, Michigan Residents, 1970-1982

YEAR	AGE AT DEATH									
	TOTAL INFANT DEATHS		UNDER 1 DAY		1-6 DAYS		7-27 DAYS		28-364 DAYS	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1970	3,492	20.34	1,367	7.96	1,095	6.38	221	1.29	809	4.71
1971	3,157	19.46	1,191	7.34	1,025	6.32	196	1.21	745	4.59
1972	2,801	19.07	1,024	6.97	906	6.17	185	1.26	686	4.67
1973	2,561	18.09	1,131	7.99	579	4.09	192	1.36	659	4.66
1974	2,387	17.37	940	6.84	569	4.14	225	1.64	653	4.75
1975	2,205	16.46	856	6.39	461	3.44	246	1.84	642	4.79
1976	1,978	15.06	829	6.31	402	3.06	193	1.47	554	4.22
1977	1,945	14.05	794	5.74	374	2.70	199	1.44	578	4.18
1978	1,931	13.91	717	5.17	384	2.77	180	1.30	650	4.68
1979	1,921	13.30	754	5.22	356	2.46	185	1.28	626	4.33
1980	1,851	12.75	790	5.44	310	2.14	184	1.27	567	3.91
1981	1,851	13.17	815	5.80	296	2.11	170	1.21	570	4.05
1982	1,672	12.12	751	5.44	284	2.06	167	1.21	470	3.41

7-27 days actually increased in the mid-1970's before dropping to about the 1970 level. The death rate for infants aged 28-364 days was quite stable from 1970 through 1975. This rate fell in 1976 and 1977 but increased in 1978 to about the same level as observed in 1970. The death rate for this age group has declined since 1978. In 1982 the death rate for infants aged 28-364 days was 3.41, 27.6 percent below the comparable rate for 1970.

Infant mortality rates have varied considerably by race. Rates for white and other than white infants since 1950 are graphically displayed in Figure 2.50. Rates for other than white infants were higher throughout the period. Although the rates for both race groups have declined, those for white infants have decreased by a relatively larger amount. As a result, the racial differential in infant mortality rates has increased since 1950. Between 1950 and 1965, the infant mortality rate for white infants declined moderately while that for other than white infants remained relatively stable. Between 1965 and 1970 the rate for white infants declined by 14.7 percent while the rate for other than white infants declined by 20.5 percent. Since 1970, however, the rate for white infants has dropped by 41.1 percent while for other than white infants the decline was 20.1 percent. The rate for other than white infants of 35.6 in 1950[2] was 40.2 percent higher than that for white infants (25.4) whereas in 1982 the rate for other than white infants of 23.1 was 2.2 times that for white infants (10.6).

Michigan resident infant deaths in 1982 are listed by cause of death classification and age at death in Table 2.54. Congenital anomalies caused the death of 319 infants and was the specific disease category most frequently reported. Sudden infant death syndrome was responsible for 177 infant deaths in 1982, while respiratory distress syndrome was listed as the cause of 228 deaths. Over half (57.3 percent) of all infant deaths were attributed to conditions originating in the perinatal period. This proportion was 83.1 percent for deaths which occurred during the first day, 70.1 percent for deaths of infants at ages 1 through 6 days, and 53.9 percent for deaths of infants 1-3 weeks of age. In contrast, 33 of 364 deaths (9.1 percent) of infants from 1-5 months of age were caused by conditions originating in the perinatal period.

The most frequent cause of death category during the first day was disorders relating to short gestation and unspecified low birthweight (17.7 percent). Congenital anomalies were also responsible for 16.0 percent of the deaths during the first day of life. Respiratory distress

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[2] Rates for other than white infants for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white.

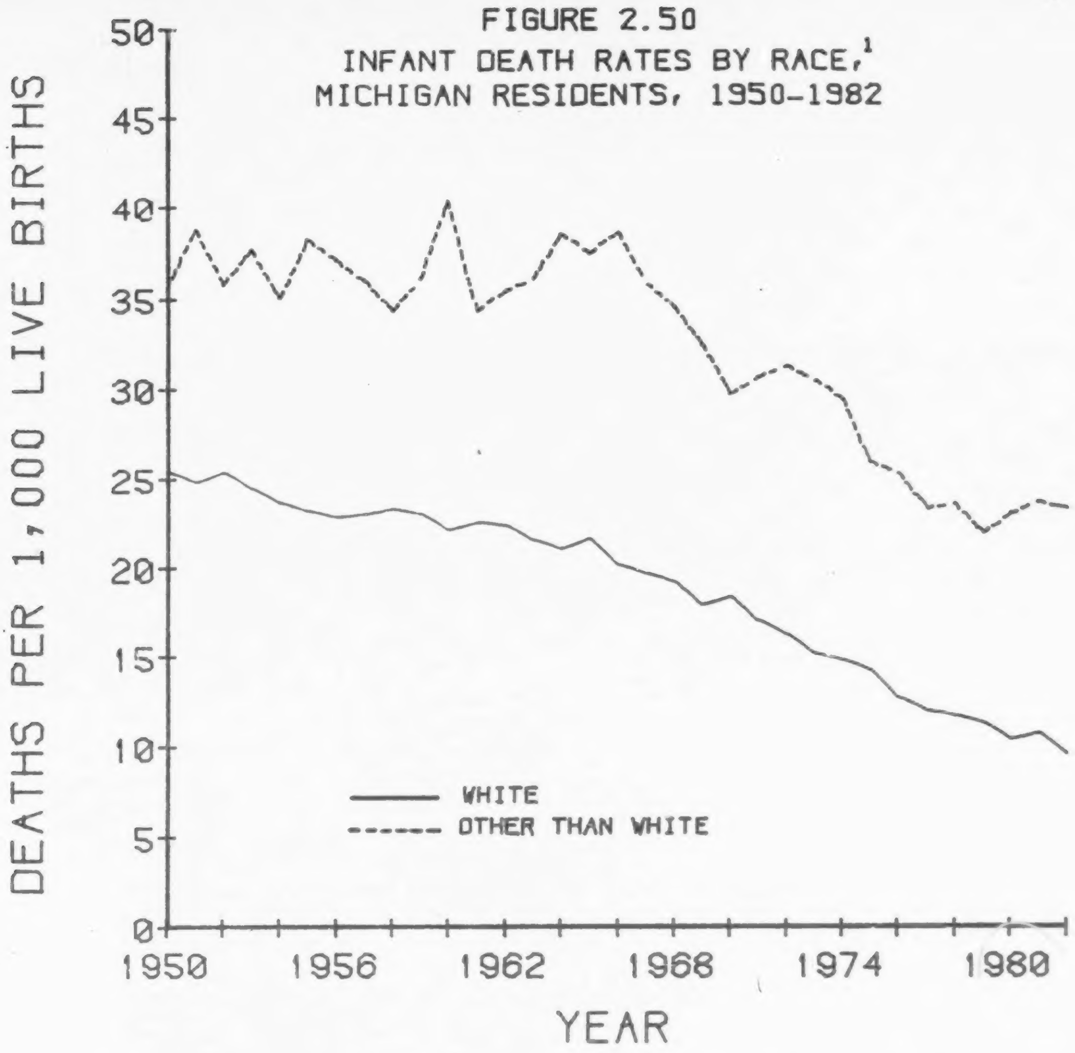


FIGURE 2.50
INFANT DEATH RATES BY RACE,[1]
MICHIGAN RESIDENTS, 1950-1982

[1] Other than white rates for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white.

Table 2.54
Infant Deaths by Age at Death and Underlying Cause, Michigan Residents, 1982

ICD - 9 CODE	CAUSE OF DEATH	AGE AT DEATH					
		TOTAL UNDER 1 YEAR	UNDER 1 DAY	1-6 DAYS	7-27 DAYS	1-5 MONTHS	6-11 MONTHS
8, 9, 535, 555-558	Certain gastrointestinal diseases	11	-	-	-	8	3
38	Septicemia	3	-	-	-	3	-
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	9	-	1	1	6	1
320-322	Meningitis	9	-	-	2	7	-
480-487	Pneumonia and influenza	15	3	-	2	7	3
740-759	Congenital anomalies	319	120	75	42	54	28
761	Newborn affected by maternal complications of pregnancy	83	77	5	1	-	-
762	Newborn affected by complications of placenta, cord and membranes	45	41	3	1	-	-
765	Disorders relating to short gestation and unspecified low birthweight	137	133	1	-	2	1
767	Birth trauma	32	7	19	6	-	-
768	Intrauterine hypoxia and birth asphyxia	47	23	11	11	1	1
769	Respiratory distress syndrome	228	97	96	25	8	2
770	Other respiratory conditions of newborn	144	82	24	13	17	8
771	Infections specific to the perinatal period	28	9	7	10	2	-
772	Neonatal hemorrhage	23	6	11	5	1	-
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	191	149	22	18	2	-
760-779	Certain conditions originating in the perinatal period	958	624	199	90	33	12
798.0	Sudden infant death syndrome	177	-	-	15	147	15
E800-E949	Accidents and adverse effects	40	-	-	1	20	19
E960-E969	Homicide	3	-	-	-	-	3
Residual	All other causes	128	4	9	14	79	22
	Total	1,672	751	284	167	364	106

syndrome and other respiratory conditions of the newborn caused 12.9 percent and 10.9 percent respectively of the deaths under 1 day of age. Congenital anomalies and respiratory distress syndrome were the leading causes of death for infants 1-6 days of age (26.4 percent and 33.8 percent respectively). For infants who died at 1-3 weeks of age the most frequent causes were also congenital anomalies (25.1 percent) and respiratory distress syndrome (15.0 percent). Sudden infant death syndrome was reported as the cause of 40.3 percent of the deaths to infants from 1-5 months of age. The leading cause of death for infants from 6-11 months of age was congenital anomalies (26.4 percent). The 19 deaths due to accidents to infants aged 6-11 months represent 17.9 percent of the total deaths in this age group, while accidental deaths represent only 2.4 percent of all infant deaths.

Infant deaths and death rates by cause are shown for white and other than white infants in Table 2.55. The most frequent causes of death for white infants were congenital anomalies (258 deaths), respiratory distress syndrome(153 deaths), and sudden infant death syndrome (118 deaths). For other than white infants a grouping of all other and ill defined conditions was the leading cause (95 deaths), followed by disorders relating to short gestation and unspecified low birthweight and congenital anomalies (66 and 60 deaths respectively). Sudden infant death syndrome ranked 4th for other than white infants in 1982. In 1981 this cause ranked 1st for other than whites. While the death rate from all causes combined for other than white infants was 2.4 times that for white infants, the rate for deaths due to certain conditions originating in the perinatal period for other than white infants was 3.0 times that for white infants. Note that 16.9 percent of the deaths of other than white infants were attributed to "all other and ill-defined conditions originating in the perinatal period", compared to 8.6 percent of the deaths of white infants. Rates for other than white infants were between 3 and 4 times those for white infants in seven categories including for deaths due to accidents, neonatal hemorrhage disorders relating to short gestation and unspecified low birthweight, and all other and ill-defined conditions originating in the perinatal period. Cause-specific infant death rates for other than white infants were higher for all categories with sufficient events to calculate rates for both groups. Relatively small differentials were in the categories of congenital anomalies, complications of the placenta,cord and membranes, and intrauterine hypoxia the death rates for other than white infants exceeded those for white infants by 10.3 percent, 18.7 percent and 28.3 percent respectively.

The infant death rate from all causes for males was 34.8 percent greater than that for females. The

Table 2.55
Infant Deaths and Infant Death Rates by Race of Infant and Underlying Cause, Michigan Residents, 1982

ICD - 9 CODE	CAUSE OF DEATH	RACE OF INFANT					
		TOTAL[1]		WHITE		OTHER THAN WHITE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	11	8.0	5	4.4	6	25.0
38	Septicemia	3	*	3	*	-	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	9	6.5	7	6.1	2	*
320-322	Meningitis	9	6.5	6	5.3	3	*
480-487	Pneumonia and influenza	15	10.9	8	7.0	7	29.2
740-759	Congenital anomalies	319	231.2	258	226.6	60	250.0
761	Newborn affected by maternal complications of pregnancy	83	60.2	61	53.6	22	91.7
762	Newborn affected by complications of placenta, cord and membranes	45	32.6	36	31.6	9	37.5
765	Disorders relating to short gestation and unspecified low birthweight	137	99.3	71	62.4	66	275.0
767	Birth trauma	32	23.2	20	17.6	12	50.0
768	Intrauterine hypoxia and birth asphyxia	47	34.1	37	32.5	10	41.7
769	Respiratory distress syndrome	228	165.3	153	134.4	75	312.5
770	Other respiratory conditions of newborn	144	104.4	85	74.6	59	245.8
771	Infections specific to the perinatal period	28	20.3	20	17.6	8	33.3
772	Neonatal hemorrhage	23	16.7	10	8.8	13	54.2
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	191	138.5	96	84.3	95	395.8
760-779	Certain conditions originating in the perinatal period	958	694.5	589	517.3	369	1,537.6
798.0	Sudden infant death syndrome	177	128.3	118	103.6	59	245.8
E800-E949	Accidents and adverse effects	40	29.0	24	21.1	16	66.7
E960-E969	Homicide	3	*	2	*	1	*
Residual	All other causes	128	92.8	90	79.0	38	158.3
	Total	1,672	1,212.0	1,110	974.8	561	2,337.6

[1] Records with race not stated are included only in total columns.

[2] Rates per 100,000 live births.

differential for deaths due to certain conditions originating in the perinatal period was 39.5 percent. The largest relative differentials in rates by sex were for complications of the placenta, cord and membranes and birth trauma where the rates for males were 2.3 and 2.4 times those for females, respectively. The only cause for which the rates was higher for females was infections specific to the perinatal period (Table 2.56).

Infant mortality rates by race are presented in Table 2.57. These data are from a file of merged live birth and infant death information. The rates presented are for Michigan residents born in 1981. Note that this matched file is approximately 97.7 percent complete and, therefore, the rate presented are understated. The rates for black infants (24.0) and American Indian infants (13.3) were 2.3 and 1.3 times respectively that for white infants (10.6). The rate for infants of other races (11.0) was well below the rate for all infants. The death rate for infants aged less than seven days showed similar variations by race (Table 2.58).

Data from the matched file on infant mortality rates by age of mother and race of child are presented in Table 2.59. Infant death rates display a parabolic relationship with mother's age. The rates are highest for infants born to mothers under age 20. The infant mortality rates of 30.0 and 20.1 for mothers under 15 years old and 15-19 years old respectively are 2.7 times and 1.8 times as high as the rate of 11.2 for mothers aged 25-29 years. The infant mortality rate for mothers 40 or over is 7.0 percent higher than that for mothers of all ages combined.

Rates for white infants generally follow the pattern of association to mother's age, but infant mortality rates for the other than white group are less variable and are significantly above those for the white group in all categories with a sufficient number of events to calculate rates. The smallest differential was for mothers under 20 years of age. Overall the rate for other than white infants was more than twice as high as that for white infants.

Table 2.60 displays the variation in infant death rates according to the number of the mother's prenatal visits. The infant death rate for mothers who had no prenatal care was 86.0, over sixteen times as high as the low rate of 5.2 for mothers who had 15-19 prenatal visits. The rate associated with mothers who had 1-4 visits was 14.3 times the low rate, while the rate associated with mothers who had 5-9 visits was 3.9 times as high as the low rate. The infant death rate for mothers with 20 or more prenatal visits was 59.6 percent higher than the low rate, reflecting the likelihood that a high number of prenatal visits is connected with a problem pregnancy.

Table 2.56
Infant Deaths and Infant Death Rates by Sex of Infant and Underlying Cause, Michigan Residents, 1982

ICD - 9 CODE	CAUSE OF DEATH	SEX OF INFANT					
		TOTAL[1]		MALE		FEMALE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	11	8.0	7	9.9	4	*
38	Septicemia	3	*	2	*	1	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	9	6.5	6	8.5	3	*
320-322	Meningitis	9	6.5	5	7.1	4	*
480-487	Pneumonia and influenza	15	10.9	10	14.1	5	7.4
740-759	Congenital anomalies	319	231.2	168	237.6	148	220.1
761	Newborn affected by maternal complications of pregnancy	83	60.2	47	66.5	36	53.5
762	Newborn affected by complications of placenta, cord and membranes	45	32.6	32	45.3	13	19.3
765	Disorders relating to short gestation and unspecified low birthweight	137	99.3	84	118.8	53	78.8
767	Birth trauma	32	23.2	23	32.5	9	13.4
768	Intrauterine hypoxia and birth asphyxia	47	34.1	26	36.8	21	31.2
769	Respiratory distress syndrome	228	165.3	144	203.7	84	124.9
770	Other respiratory conditions of newborn	144	104.4	84	118.8	60	89.2
771	Infections specific to the perinatal period	28	20.3	14	19.8	14	20.8
772	Neonatal hemorrhage	23	16.7	12	17.0	11	16.4
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	191	138.5	103	145.7	87	129.4
760-779	Certain conditions originating in the perinatal period	958	694.5	569	804.8	388	577.0
798.0	Sudden infant death syndrome	177	128.3	102	144.3	75	111.5
E800-E949	Accidents and adverse effects	40	29.0	25	35.4	15	22.3
E960-E969	Homicide	3	*	2	*	1	*
Residual	All other causes	128	92.8	82	116.0	46	68.4
	Total	1,672	1,212.0	978	1,383.2	690	1,026.1

[1] Records with sex not stated are included only in total columns.

[2] Rates per 100,000 live births.

Table 2.57
Infant Deaths, Live Births, and Infant Death Rates by Race, Michigan Resident Infants Born in 1981

RACE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Races	1,798	140,579	12.8
White	1,231	115,972	10.6
Black	544	22,705	24.0
American Indian	7	526	13.3
Other Races	14	1,272	11.0
Unknown	2	104	*

Table 2.58
Hebdomadal Deaths[1] and Death Rates[2] by Race, Michigan Resident Infants Born in 1981

RACE	HEBDOMADAL DEATHS	HEBDOMADAL DEATH RATE
All Races	1,087	7.7
White	729	6.3
Black	347	15.3
American Indian	4	*
Other Races	5	3.9
Unknown	2	*

[1] Deaths to infants less than seven days old.
[2] Per 1,000 live births.

Table 2.59
Infant Deaths, Live Births, and Infant Death Rates by Age of Mother and Race[1] of Infant, Michigan Resident Infants Born in 1981

AGE OF MOTHER	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Ages	1,798	140,579	12.8	1,231	115,972	10.6	565	24,503	23.1
Under 15 Years	9	300	30.0	2	97	*	7	202	34.7
15-19 Years	369	18,397	20.1	215	12,959	16.6	153	5,420	28.2
20-24 Years	602	47,737	12.6	426	39,379	10.8	175	8,320	21.0
25-29 Years	523	46,527	11.2	384	40,217	9.5	139	6,283	22.1
30-39 Years	283	26,879	10.5	195	22,738	8.6	88	4,121	21.4
40 or More Years	10	729	13.7	7	573	12.2	3	156	*
Age Not Stated	2	10	*	2	9	*	-	1	*

[1] Race not stated included in total columns only.

Table 2.60
Infant Deaths, Live Births, and Infant Death Rates by Prenatal Visits and Race[1] of Infant, Michigan Resident Infants Born in 1981

NUMBER OF VISITS	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
Total	1,798	140,579	12.8	1,231	115,972	10.6	565	24,503	23.1
0	80	930	86.0	28	483	58.0	52	444	117.1
1-4	336	4,503	74.6	203	2,766	73.4	133	1,735	76.7
5-9	574	28,427	20.2	429	22,489	19.1	145	5,927	24.5
10-14	483	83,804	5.8	399	73,734	5.4	84	10,041	8.4
15-19	72	13,749	5.2	47	11,542	4.1	25	2,201	11.4
20 or Over	22	2,664	8.3	13	1,987	6.5	9	675	13.3
Unknown	231	6,502	35.5	112	2,971	37.7	117	3,480	33.6

[1] Race not stated included in total columns only.

Mothers with fewer than ten prenatal visits had 24.1 percent of all live births but 55.1 percent of all infant deaths. Mothers who had ten or more prenatal visits had 71.3 percent of the live births and 32.1 percent of the infant deaths. The infant death rate for mothers who had fewer than ten prenatal visits was 29.3. This is 5.1 times the rate of 5.8 for mothers who had ten or more prenatal visits.

The differential in mortality rates between other than white and white infants noted above is significantly altered when comparisons are made within the same range of prenatal visits. While the overall rate for other than white infants was 2.2 times that for white infants, for mothers who had 1-4 prenatal visits or 20 or more prenatal visits the rates for other than white infants were similar to the rates for white infants. For mothers with fewer than ten prenatal visits, the infant mortality rate for white infants was 25.6 and that for other than white infants 40.7. For mothers with ten or more prenatal visits, the rate for white infants was 5.3 and for other than white infants 9.1. The rate for other than white infants was 59.0 percent higher where the mother had fewer than ten prenatal visits and 71.7 percent higher where the mother had ten or more visits. Both of these racial differentials were less than the overall racial differential of 118 percent. This seemingly paradoxical result is explained by the differing distributions of the white and the other than white births. The overall infant mortality rate for each race is a weighted sum of the infant mortality rates for the different prenatal care categories. The weight for each prenatal care category is the ratio of the number of live births in that category to the total number of live births. Since a greater proportion of the other than white live births are to mothers in the categories with fewer prenatal visits, the higher infant mortality rates in the categories with fewer prenatal visits are more heavily weighted for the other than white population.

When deaths under one week are added to fetal deaths the total is called perinatal deaths. By placing a ceiling of six days for the infant component of perinatal deaths, most accidental and environmental causes of death are eliminated. In 1982, Michigan resident perinatal deaths numbered 2,127 and the perinatal death rate was 15.0. This rate was 15.5 in 1981 and 26.0 in 1970. As with infant death rates, perinatal death rates vary considerably with race, age of mother, and number of prenatal visits. Tables 2.61 and 2.62 show perinatal deaths and rates by age of mother, the number of the mother's prenatal visits, and the race of the fetus or infant for fetal deaths and live births occurring in 1981. The data for hebdomadal deaths are drawn from a merged file of birth and death data. As a result, perinatal deaths and rates are slightly understated. Table

Table 2.61
Perinatal Deaths, Total Births, and Perinatal Death Rates by Age of Mother and Race[1] of Infant or Fetus, Births to Michigan Residents in 1981

AGE OF MOTHER	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total	2,127	141,619	15.0	1,508	116,751	12.9	611	24,758	24.7
Under 15 Years	12	306	39.2	4	99	*	8	206	38.8
15-19 Years	354	18,548	19.1	214	13,061	16.4	138	5,468	25.2
20-24 Years	677	48,075	14.1	493	39,633	12.4	181	8,402	21.5
25-29 Years	638	46,827	13.6	472	40,449	11.7	164	6,349	25.8
30-39 Years	416	27,101	15.3	299	22,906	13.1	116	4,174	27.8
40 or More Years	20	744	26.9	16	586	27.3	4	158	*
Age Not Stated	10	18	000	10	17	000	-	1	000

[1] Race not stated included in total columns only.

Note: Fetal death data for 1981 have been revised.

Table 2.62
Perinatal Deaths, Total Births, and Perinatal Death Rates by Prenatal Visits and Race[1] of Infant or Fetus, Births to Michigan Residents in 1981

NUMBER OF VISITS	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total	2,127	141,619	15.0	1,508	116,751	12.9	611	24,758	24.7
0	115	980	117.3	50	510	98.0	65	467	139.2
1-4	453	4,689	96.6	300	2,901	103.4	153	1,786	85.7
5-9	738	28,806	25.6	564	22,784	24.8	172	6,009	28.6
10-14	427	84,047	5.1	364	73,940	4.9	61	10,076	6.1
15-19	78	13,801	5.7	61	11,585	5.3	17	2,210	7.7
20 or Over	24	2,679	9.0	11	1,994	5.5	13	683	19.0
Unknown	292	6,617	44.1	158	3,037	52.0	130	3,527	36.9

[1] Race not stated included in total columns only.

Note: Fetal death data for 1981 have been revised.

2.61 makes clear the increased risk of death to fetuses and infants of mothers under 20 years or age 40 or greater. Minimum risk in 1981 was associated with mothers 25-29 years of age. Table 2.62 indicates that the risk of perinatal death is twenty-three times as great for fetuses and infants whose mothers had no prenatal visits compared to those whose mothers had 10-14 visits. The risk associated with 5-9 prenatal visits is 5.0 times as great as for the lowest risk category (10-14 visits).

The overall perinatal mortality rate for other than white fetuses and infants was twice as high as for whites. The highest perinatal death rate for both groups was associated with mothers under age 15. The minimum risk was associated with mothers 25-29 years of age for both white and other than white fetuses and infants (Table 2.61).

For both white and other than white fetuses and infants the highest mortality rates were associated with mothers who received less than 5 prenatal visits. In each prenatal care category the rates were higher for other than white fetuses and infants, excepting 1-4 visits, although the differentials by race were considerably less than the overall differential (Table 2.62).

The median birth weight of infants born in 1981 and dying prior to 1 year of age was 1,410 grams (Table 2.63). The median birth weight of all Michigan resident live births in 1981 was 3,402 grams. For all maternal age groups, the median birth weight for infant deaths was below the overall median birth weight for liveborn infants.

Infant death rates by race, birth weight and age at death are displayed in Table 2.64 for infants born in 1981. While the overall infant death rate for other than white infants was more than double that of white infants, the rates for white and other than white infants were quite similar for infants born weighing 1500 grams or less. The rate for white infants weighing 1501-2500 grams exceeded by 28.5 percent the comparable rate for other than white infants. For infants weighing 2,501 grams or more the rate for other than white infants exceeded by 47.7 percent that for white infants. A large part of the difference between infant death rates for white and other than white infants is due to the fact that a greater proportion of the other than white infants were born at weights below 2,501 grams (12.8 percent for other than white infants compared to 5.7 percent for white infants).

The differentials in death rates by race for deaths under 28 days (neonatal deaths) and from 28-364 days (postneonatal deaths) were similar to that for all infant deaths. For both neonatal and postneonatal deaths the differentials in death rates by race in the different birth

Table 2.63
Infant Deaths by Birth Weight and Mother's Age, Michigan Resident Infants Born in 1981

BIRTH WEIGHT IN GRAMS	TOTAL	MOTHER'S AGE						
		UNDER 15	15-19	20-24	25-29	30-39	40 OR MORE	NOT STATED
Total	1,798	9	369	602	523	283	10	2
500 or Less	262	2	47	90	77	43	3	-
501-1,000	483	3	107	154	137	79	1	2
1,001-1,500	144	-	28	51	48	17	-	-
1,501-2,000	97	1	18	38	23	17	-	-
2,001-2,500	137	-	31	44	32	28	2	-
2,501-3,000	192	-	37	55	69	30	1	-
3,001-3,500	242	1	50	96	68	26	1	-
3,501-4,000	123	1	31	39	31	21	-	-
4,001-4,500	48	1	10	12	16	8	1	-
4,501 and Over	11	-	2	4	4	1	-	-
Not Stated	59	-	8	19	18	13	1	-
Median Weight in Grams	1,410	*	1,439	1,420	1,389	1,375	*	*

Table 2.64
Live Births by Birth Weight and Race of Infant and Infant Deaths and Infant Death Rates by Birth Weight, Age at Death, and Race of Infant, Michigan Resident Infants Born in 1981

BIRTHWEIGHT	RACE OF INFANT	LIVE BIRTHS	AGE AT DEATH					
			UNDER 1 YEAR		UNDER 28 DAYS		28-364 DAYS	
			NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
Total	All Races	140,579	1,798	12.8	1,259	9.0	539	3.8
	White	115,972	1,231	10.6	849	7.3	382	3.3
	All Other[1]	24,503	565	23.1	408	16.7	157	6.4
Less Than 1,501 Grams	All Races	1,794	889	495.5	828	461.5	61	34.0
	White	1,144	556	486.0	516	451.0	40	35.0
	All Other[1]	648	333	513.9	312	481.5	21	32.4
1,501-2,500 Grams	All Races	7,958	234	29.4	142	17.8	92	11.6
	White	5,477	173	31.6	112	20.4	61	11.1
	All Other[1]	2,478	61	24.6	30	12.1	31	12.5
2,501 Grams Or Greater	All Races	130,564	616	4.7	242	1.9	374	2.9
	White	109,280	479	4.4	202	1.8	277	2.5
	All Other[1]	21,199	137	6.5	40	1.9	97	4.6
Unknown Birthweight	All Races	263	59	224.3	47	178.7	12	45.6
	White	71	23	323.9	19	267.6	4	*
	All Other[1]	178	34	191.0	26	146.1	8	44.9

[1] Race not stated included in total rows only.

weight categories were less than the overall differential. The neonatal rate for white infants weighing 1501-2500 grams was 1.6 times the comparable rate for other than white infants while the postneonatal death rate for other than white infants in this birth weight category exceeded the comparable rate for white infants by 12.6 percent. For infants weighing 2501 grams or more at birth, the rates were higher for other than white infants by 5.5 percent and 84 percent, respectively, for neonatal and postneonatal deaths.

COMMUNICABLE DISEASE DEATHS

Although comprising a smaller proportion of deaths than they have in the past, communicable disease deaths continue to be a public health concern. In 1982, deaths from all infectious and parasitic diseases numbered 651. As can be observed from Table 2.65, nearly two thirds of these deaths were caused by septicemia (428 deaths). Tuberculosis, and mycoses caused 41 and 23 deaths, respectively. When deaths attributed to late effects of tuberculosis are included, the number of deaths from tuberculosis rises to 50.

The distribution of infectious and parasitic disease deaths by age, race, and sex for 1982 is given in Table 2.66, and the corresponding death rates are shown in Table 2.67. Note that deaths to other than white persons accounted for 22.9 percent of all infectious and parasitic disease deaths but only 13.5 percent of deaths from all causes. The death rates were highest for persons aged 65 years and over (44.3 deaths per 100,000 population) and for infants under 1 year (12.1). Rates for other than white males were highest, followed by those for other than white females.

Deaths due to such diseases as diptheria, scarlet fever, streptococcal sore throat, small pox, typhoid fever, measles, poliomyelitus and others have been virtually eliminated not only in Michigan, but across the nation. Table 4.7 illustrates trends in deaths from the major communicable diseases.

Table 2.65
Deaths From Selected Infectious and Parasitic Diseases, Michigan Residents, 1982

ICD LIST' NUMBER	CAUSE OF DEATH	FREQUENCY
038	Septicemia	428
010-018	Tuberculosis	41
110-118	Mycoses	23
135	Sarcoidosis	17
070	Viral Hepatitis	16
054	Herpes Simplex	12
036	Meningococcal Infection	11
053	Herpes Zoster	9
137	Late Effects of Tuberculosis	9
046	Slow Virus Infection of Central Nervous System	8
136.3	Pneumocystosis	6
040.0	Gas Gangrene	4
052	Chickenpox	3
Residual 000-139	All Other Infectious and Parasitic Diseases .	64
000-139	Total	651

'Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

Table 2.66
Deaths Due to Infectious and Parasitic Diseases by Age, Race, and Sex, Michigan Residents, 1982

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	651	250	66	252	83
Under 1 Year	17	8	3	4	2
1-19 Years	22	14	-	5	3
20-44 Years	45	10	10	13	12
45-64 Years	152	56	22	45	29
65 or Over	415	162	31	185	37

Table 2.67
Infectious and Parasitic Diseases Death Rates by Age, Race, and Sex, Michigan Residents, 1982

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	7.1	6.6	9.5	6.3	10.9
Under 1 Year	12.1	13.9	*	*	*
1-19 Years	0.8	1.2	*	0.5	*
20-44 Years	1.3	0.7	3.9	0.9	4.1
45-64 Years	8.5	7.5	21.4	5.6	24.2
65 or Over	44.3	47.8	76.3	36.8	66.7

INJURY AT WORK

There were 182 deaths reported as resulting from injuries at work in 1982, 3 more than in 1981 These include all cases in which the underlying cause of death was external and the injury was reported to have occurred at work, whether or not the injury was work-related. Table 2.68 gives the frequency of deaths due to injuries at work by place of occurrence. The most common site was industrial places and premises with 56 deaths. Injuries in public buildings caused 43 deaths followed by injuries on streets and highways with 40 deaths. There were 13 deaths from injuries taking place on farms.

The most frequent causes of death associated with injuries at work were accidents caused by homicide and legal intervention with 40 deaths or 22.0 percent of all such deaths (Table 2.69). The second most common cause was motor vehicle traffic accidents, accounting for 31 deaths and 17.0 percent of the total. Accidents caused by machinery and accidental falls accounted for 25 and 14 deaths, respectively.

Table 2.68
Deaths Due to Injury at Work by Place of Injury, Michigan Residents, 1982

PLACE	NUMBER OF DEATHS
Industrial Place and Premises	56
Public Building	43
Street and Highway	40
Farm	13
Home	6
Place for Recreation and Sport	4
Mine and Quarry	3
Resident Institution	1
Other Specified Places	16
Place Not Specified	-
Total	182

Table 2.69
Deaths Due to Injury at Work by Cause of Death, Michigan Residents, 1982

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
E960-E978	Homicide and Legal Intervention	40	22.0
E810-E819	Motor Vehicle Traffic Accidents	31	17.0
E919	Accidents Caused by Machinery	25	13.7
E880-E888	Accidental Falls	14	7.7
E916	Struck Accidentally by Falling Object .	11	6.0
E925	Accidents Caused by Electric Current .	10	5.5
E820-E825	Motor Vehicle Nontraffic Accidents . .	8	4.4
E950-E959	Suicide	7	3.8
E928	Other and Unspecified Environmental and Accidental Causes	5	2.7
E830-E838	Water Transport Accidents	4	2.2
E840-E845	Air and Space Transport Accidents . . .	2	1.1
E923	Accident Caused by Explosive Material .	2	1.1
E890-E899	Accident Caused by Fire and Flames . .	2	1.1
E980-E989	Injury Undetermined Whether Accidentally or Purposely Inflicted . .	2	1.1
E913	Accidental Mechanical Suffocation . . .	1	0.5
Residual E800-E949	All Other Accidents	18	9.9
	Total	182	100.0

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

LIFE EXPECTANCY

The life expectancy of a Michigan resident at birth is 73.8 years, based on 1982 mortality and population data. Females demonstrated a significantly greater longevity than males. In 1982 the life expectancy at birth was 70.4 years for males and 77.2 years for females. This results from the higher mortality rates of males at all ages.

Life expectancies by sex in selected years for Michigan and United States residents are presented in Table 2.70. It can be seen that longevity has increased greatly in Michigan since 1901, by 17.0 years for males and by 22.1 years for females. Females born in Michigan in 1901 could expect to live 1.7 years longer than their male counterparts. By 1950 the differential in life expectancy between the sexes was 5.5 years. This disparity increased to 7.6 years by 1971, remained constant through 1973, and by 1982 had declined to 6.8 years. Between 1972 and 1982 life expectancy for males increased by 3.1 years while for females the increase was 2.3 years.

The life expectancy of Michigan residents was well above that for the nation in 1901, but this differential had virtually disappeared by 1950. In 1980 the life expectancy of males in Michigan was equal to that for males nationwide, at 70.0 years compared, while longevity for females residing in this state was 0.6 years below the average for the country. Note that females have consistently demonstrated greater longevity than males both in Michigan and in the United States.

White persons displayed a life expectancy 4.6 years greater than other than white persons in 1982. The life expectancy of white males was 5.3 years greater than other than males in 1982 compared to a differential of 5.8 years in 1950 (Table 2.71). In 1970 the differential was 7.2 years, due in part to an actual reduction in life expectancy for other than white males between 1960 and 1970. Since 1970 life expectancy for other than white males has increased 8.0 percent, from 61.0 to 65.9 years. This is a reflection of the recent decline in mortality rates for several leading causes of death for this group. The change in the differentials by race for female expectancies has been much more pronounced. In 1950, Michigan resident white females had an average longevity 8.5 years greater than females of all other races. This disparity declined to 4.0 years in 1982.

The expected number of years of life remaining are presented graphically by age, race, and sex in Figure 2.51. The number of years of life remaining for females is greater than that for males throughout life. Other than white persons display slightly greater life expectancies in the

Table 2.70
Life Expectancy at Birth by Sex, Michigan and United States Residents, Selected Years, 1901-1982

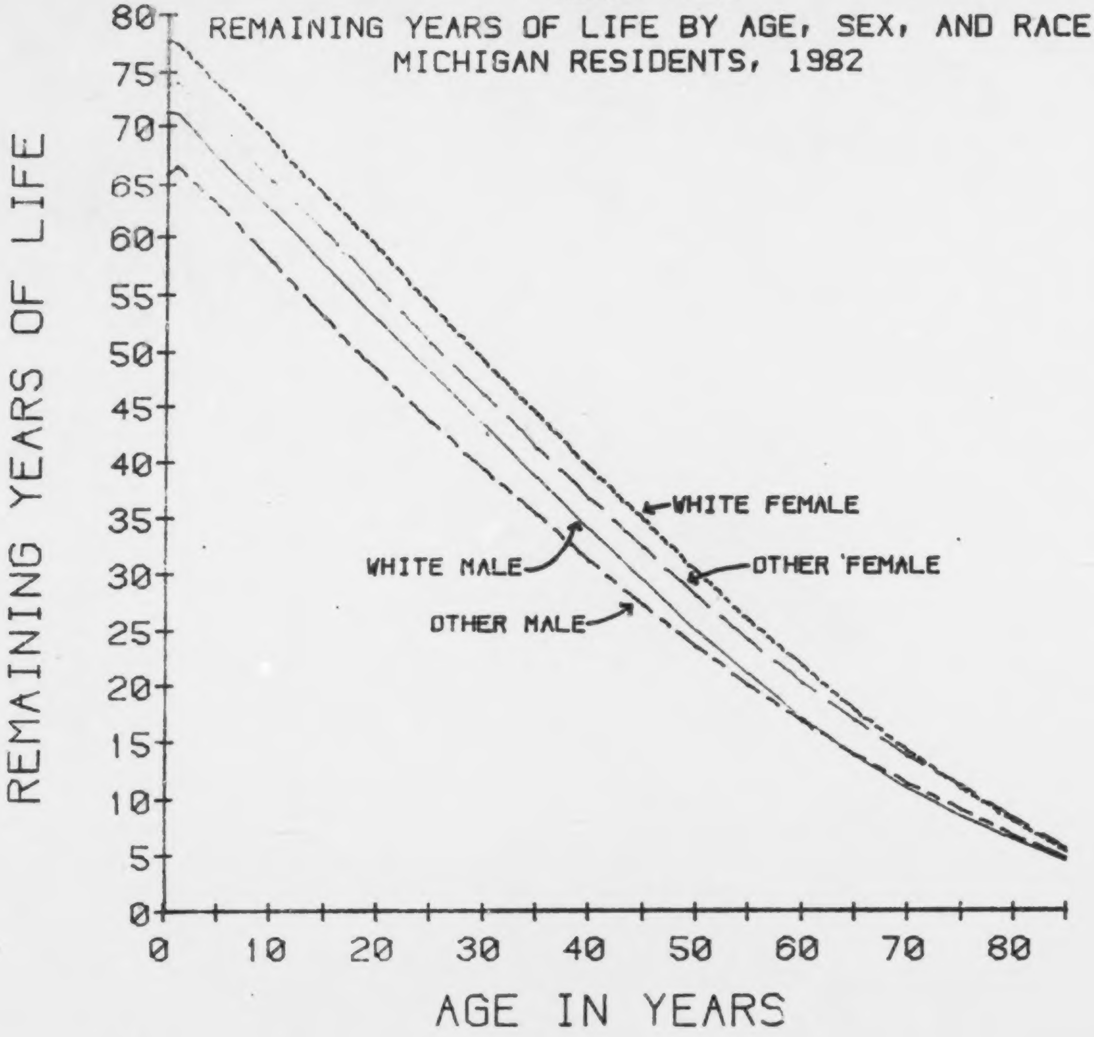
UNITED STATES		YEAR	MICHIGAN	
MALE	FEMALE		MALE	FEMALE
47.6	50.6	1901	53.4	55.1
48.4	51.8	1910	53.9	56.2
53.6	54.6	1920	55.1[1]	56.0[1]
58.1	61.6	1930	59.8[1]	62.8[1]
60.8	65.2	1940	63.4[1]	67.4[1]
65.6	71.1	1950	65.7	71.2
66.6	73.1	1960	67.1	73.3
67.1	74.8	1970	67.2	74.6
67.4	75.0	1971	67.3	74.9
67.4	75.1	1972	67.3	74.9
67.6	75.3	1973	67.4	75.0
68.1	75.8	1974	68.0	75.3
68.7	76.5	1975	68.5	75.7
69.0	76.7	1976	69.0	75.9
69.3	77.1	1977	69.3	76.3
69.5	77.2	1978	69.6	76.4
69.9	77.6	1979	70.0	76.8
70.0	77.5	1980	70.0	76.9
---	---	1981	70.2	76.9
---	---	1982	70.4	77.2

[1] Michigan data for years 1920, 1930, and 1940 are for white persons only.

Table 2.71
Life Expectancy at Birth by Sex and Race, Michigan Residents, Selected Years 1950-1982

POPULATION SUBGROUP	YEAR					
	1950	1960	1970	1980	1981	1982
Total Population	68.3	70.0	70.8	73.4	73.6	73.8
Total Male	65.7	67.1	67.2	70.0	70.2	70.4
Total Female	71.2	73.3	74.6	76.9	76.9	77.2
Total White	68.8	70.5	71.6	74.2	74.3	74.5
White Male	66.2	67.5	68.2	70.9	71.0	71.2
White Female	71.9	74.0	75.3	77.5	77.5	77.8
Total All Other	61.8	65.6	65.0	69.3	69.5	69.9
All Other Male	60.4	63.6	61.0	65.3	65.8	65.9
All Other Female	63.4	67.7	69.4	73.3	73.4	73.8

FIGURE 2.51
REMAINING YEARS OF LIFE BY AGE, SEX, AND RACE, MICHIGAN RESIDENTS, 1982



older age intervals than their white counterparts. The average number of years remaining for other than white females surpasses that of white females between ages 70 and 75. Other than white males display a greater expectation than that of white males at ages 70 and over.

PLACE OF OCCURRENCE

There were 2,123 Michigan resident deaths in 1982 that occurred outside the state. This represents 2.8 percent of all resident deaths. 479 Michigan resident deaths occurred in the state of Florida in 1982. This is 22.6 percent of all resident out-of-state deaths, more than in any other area. The border areas of Indiana, Ohio, Wisconsin, and Canada accounted for 37.2 percent of all resident deaths outside Michigan. In addition to the above-mentioned areas, over 50 Michigan resident deaths also occurred in each of the following states: Illinois, California, Texas, and Arizona. Michigan resident deaths occurred in all of the 50 states in 1982 and the District of Columbia (Table 2.72).

Of the 1,038 non-residents that died in Michigan in 1982, 43.5 percent were from the border areas, 19.1 percent were Floridians and 9.0 percent were from Illinois. Overall, non-residents who died in Michigan represented 42 states and several foreign countries.

Table 2.72
Michigan Resident Deaths Occurring Outside Michigan by Place of Occurrence and Deaths Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1982

GEOGRAPHIC AREA	DEATHS OF RESIDENTS OCCURRING OUTSIDE MICHIGAN		DEATHS OF NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	2,123	100.0	1,038	100.0
Florida	479	22.6	198	19.1
Ohio	333	15.7	163	15.7
Indiana	223	10.5	85	8.2
Wisconsin	184	8.7	163	15.7
Illinois	104	4.9	94	9.1
California	98	4.6	32	3.1
Texas	93	4.4	13	1.3
Arizona	77	3.6	14	1.3
Canada	49	2.3	41	3.9
Pennsylvania	38	1.8	30	2.9
New York	31	1.5	28	2.7
Other Areas	414	19.5	177	17.1

MARRIAGE & DIVORCE

SECTION III

MARRIAGE AND DIVORCE: AN OVERVIEW 1982

TOTAL MARRIAGES	82,633
TOTAL DIVORCES AND ANNULMENTS	39,739
MARRIAGE RATE[1]	17.9
DIVORCE RATE[1]	8.6
MEDIAN AGE OF THE BRIDE	24
MEDIAN AGE OF THE GROOM	26

[1] Number of persons married or divorced per 1,000 population.

MARRIAGES AND DIVORCES

The number of marriages and divorces occurring in Michigan has increased considerably since 1900. While the frequency of marriage has generally followed the growth of Michigan's population, the rate of persons dissolving their marriages has increased nearly fourfold since 1900. The smallest number of marriages in the years 1900 to 1982 was 23,295 in 1900, while the largest number was 94,486 in 1973. After steep declines in the number of marriages in 1974 and 1975 and a smaller decline in 1976, the number of marriages increased during each of the following three years. In 1980 and 1981 the number of marriages declined. The number of marriages recorded in 1982 was 82,633, a decrease of 3.1 percent from the 1981 figure. The number of divorces and annulments has increased from a low of 2,435 in 1900 to a high of 45,047 in 1980. In 1982 the number of divorces and annulments was 39,739. This represents a decrease of 7.9 percent from the figure for 1981.

MARRIAGES

Since 1900 there have been noticeable changes in the marriage rates both nationally and in Michigan (Figure 3.1). The marriage rates observed for the state have generally followed the pattern of rising and falling rates observed nationally. Strong historic shifts in rates have been related most notably to the factors of war and the economy. The highest rates observed during this century were for the years immediately following the end of the two World Wars (27.7 in 1919 and 27.6 in 1946). The lowest rates occurred during the Great Depression of the 1930's.

The number of persons married each year per 1,000 population was higher in Michigan than in the country for 19 of the 26 years from 1900 through 1925. Since 1926, Michigan's marriage rate has been lower than that of the nation, excepting only the years 1964 through 1969. The gap between the marriage rate for Michigan and that for the nation has increased in recent years. In 1977 the U.S. rate (including nonlicensed marriages registered in California) was 8.5 percent above that of Michigan. This percent increased to 13.3 in 1980, and in 1982 the provisional rate for the nation was 20.7 percent above Michigan's rate.

The marriage rate for Michigan in 1982 was 17.9, 2.7 percent lower than the 1981 rate of 18.4 (Table 3.1). The provisional rate for the nation in 1982 was up from the 1981 rate of 21.3.

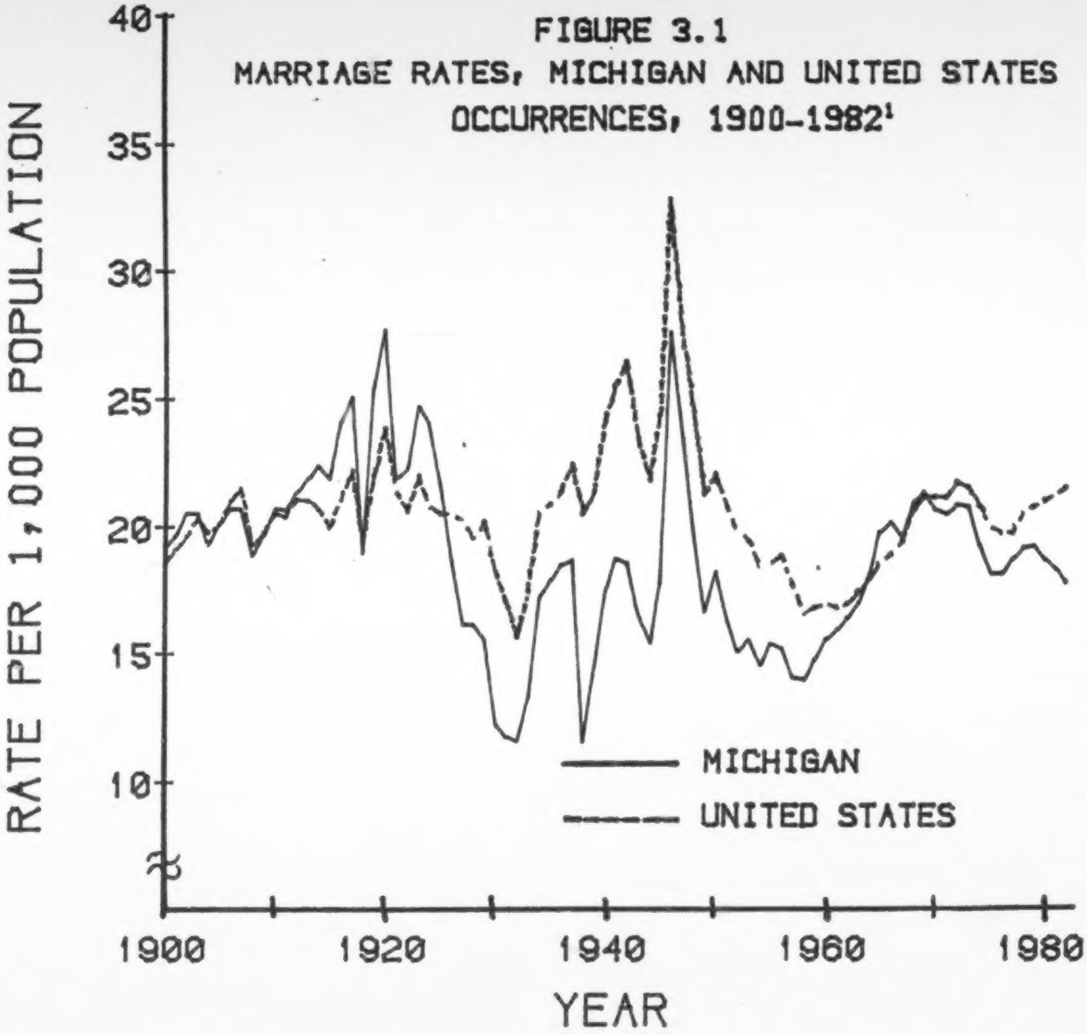


FIGURE 3.1
MARRIAGE RATES, MICHIGAN AND UNITED STATES
OCCURRENCES, 1900-1982[1]

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[1] UNITED STATES RATES FOR 1981 AND 1982 ARE PROVISIONAL

Table 3.1
Marriages and Marriage Rates[1], Michigan and United States[2] Occurrences, Selected Years, 1920-1982

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,274,476	23.9	1920	50,805	27.7
1,126,856	18.3	1930	29,482	12.2
1,595,879	24.2	1940	46,342	17.6
1,667,231	22.1	1950	58,180	18.3
1,523,000	17.0	1960	61,090	15.6
1,548,000	16.9	1961	63,320	16.0
1,577,000	17.0	1962	65,002	16.4
1,654,000	17.5	1963	68,160	17.0
1,725,000	18.0	1964	73,911	18.2
1,800,000	18.6	1965	81,247	19.8
1,857,000	19.0	1966	83,903	20.2
1,927,000	19.5	1967	84,363	19.6
2,069,000	20.7	1968	90,984	21.0
2,145,000	21.2	1969	93,392	21.4
2,158,802	21.2	1970	91,933	20.7
2,190,481	21.2	1971	92,134	20.5
2,282,154	21.8	1972	94,447	20.9
2,284,108	21.6	1973	94,486	20.8
2,229,667	20.9	1974	88,023	19.3
2,152,662	20.0	1975	82,856	18.2
2,154,807	19.8	1976	82,753	18.2
2,178,367	19.8	1977	86,088	18.8
2,282,272	20.6	1978[3]	88,333	19.2
2,331,337	20.8	1979	89,450	19.3
2,390,252	21.1	1980	86,898	18.8
2,438,000Pr.	21.3Pr.	1981	85,252	18.4
2,495,000Pr.	21.6Pr.	1982	82,633	17.9

[1] Number of persons married per 1,000 population.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Beginning with 1978, marriage data for the United States include nonlicensed marriages registered in California. If nonlicensed marriages were included in the 1977 total, the marriage rate would increase from 19.8 to 20.1.

RESIDENCE OF COUPLES MARRYING IN MICHIGAN

When presenting statistics of births, deaths and fetal deaths it is possible to provide total resident figures due to an interstate agreement for exchange of nonresident event information. Thus, should a Michigan resident give birth in some other state, the state will forward the information to Michigan. No such agreement exists for marriages. This is an important consideration when analyzing marriage statistics. The marriage data presented are drawn from all marriages performed in the state regardless of the couples' residence.

Table 3.2 indicates that, in general, most of the couples marrying in Michigan are residents of the state. For marriages occurring in Michigan in 1982 96.6 percent of the brides were residents of Michigan, while 92.9 percent of the grooms were residents of the state. These figures are somewhat higher than those for marriages occurring in Michigan in 1972. Over the decade the proportion of marriages where both the bride and groom are not residents has declined substantially. These data indicate that the general characteristics of marriages occurring in Michigan should be representative of marriage patterns for Michigan residents.

There were a total of 2,781 non-resident brides married in Michigan in 1982. The figure for grooms is double that of brides, numbering 5,736. Table 3.3 shows the most frequent residences of non-resident brides and grooms married in Michigan. The nearby states of Illinois, Indiana, Ohio and Wisconsin are the states of residence for 32 percent of all non-resident grooms and 38 percent of non-resident brides.

MONTH OF MARRIAGE

The number of marriages occurring in Michigan varies with the seasons. The most popular month for marriages in 1982 was August, with 10,062 marriage ceremonies being performed during this month. May, June and July were also popular choices, with 10.8, 12.2,and 11.0 percent of all marriages being performed in those months respectively. Fewer marriages occurred during the winter months. The lowest figure was for January, with about one third the number which occurred in August (Table 3.4)

AGE AT MARRIAGE

Examination of the data in Table 3.5 reveals that females generally marry at a younger age than do males. The number of females who marry before the age of 20 is over two

Table 3.2
Marriages by Residence Status of Bride and Groom, Michigan Occurrences, 1972 and 1982

RESIDENCE STATUS	1972		1982	
	NUMBER	PERCENT	NUMBER	PERCENT
Both Bride and Groom Residents.......	86,673	91.8	73,682	92.1
Bride Resident, Groom Non-Resident...	3,493	3.7	3,569	4.5
Groom Resident, Bride Non-Resident...	938	1.0	614	0.8
Both Bride and Groom Non-Resident...	3,341	3.5	2,167	2.7
Residence Status, Not Stated.........	2	0.0	-	0.0
Total...............................	94,447	100.0	80,032[1]	100.0

[1] Excludes 2,601 marriages which were reported too late for inclusion in the statistical file.

Table 3.3
Place of Residence of Non-resident Brides and Grooms, Marriages Occurring in Michigan, 1982

GEOGRAPHIC AREA	NON-RESIDENT BRIDE	NON-RESIDENT GROOM
Arizona	54	101
California	198	453
Colorado	104	177
Florida	215	392
Illinois	259	487
Indiana	273	444
Minnesota	59	119
New York	83	216
Ohio	283	518
Texas	294	662
Wisconsin	243	371
Other U.S. Places	639	1,557
Foreign Countries	77	239
Total	2,781	5,736

Table 3.4
Marriages by Month, Michigan Occurrences, 1982

MONTH	NUMBER	PERCENT
January	3,697	4.5
February	3,964	4.8
March	4,225	5.1
April	5,574	6.7
May	8,887	10.8
June	10,045	12.2
July	9,070	11.0
August	10,062	12.2
September	8,022	9.7
October	8,096[1]	9.8[1]
November	5,521[1]	6.7[1]
December	5,470[1]	6.6[1]
January - December	82,633	100.0

[1] Estimate

Table 3.5
Number of Marriages and Marriage Rates[1] by Age and Sex, Michigan Occurrences, 1972 and 1982

AGE IN YEARS	MALES			FEMALES		
	NUMBER OF MARRIAGES 1982	RATE 1982	RATE 1972	NUMBER OF MARRIAGES 1982	RATE 1982	RATE 1972
Under 20[2]	5,323	11.7	37.2	14,017	31.7	78.0
20-24	28,514	61.7	118.6	31,001	66.6	89.1
25-34	30,058	38.2	36.3	23,883	29.5	23.0
35-44	9,016	18.0	13.2	6,619	12.7	9.9
45 or Over	7,120	5.8	6.6	4,506	3.0	4.3
Not Stated	1	000	000	6	000	000
Total	80,032	17.8	21.4	80,032	16.9	20.5
Median Age at Last Birthday	26	000	000	24	000	000

[1] Number of persons married per 1,000 populatiion.
[2] 15-19 population used to obtain rate.

and a half times the corresponding frequency for males. Between ages 20 and 24 the numbers of brides and grooms are similar. Among persons 25 and over, males marry more frequently than females. In 1982 the median age of brides marrying in Michigan was 24 years, while the 50th percentile for grooms was 26.

Since 1972, there have been significant declines in the marriage rate for persons of both sexes under the age of 25 years. The largest decline observed is for males under the age of 20 years for whom the marriage rate has dipped 68.5 percent. The comparable decline for females was 59.4 percent. The marriage rate declined by 56.9 percent and 25.3 percent respectively for males and females between the ages of 20 and 24. For persons between the ages of 25 and 44 the rates of marriage have increased since 1972 for both sexes, while rates for persons 45 and over have dropped.

The distribution of marriages by the age of bride and groom is shown in Table 3.6.

REMARRIAGES

Between 1972 and 1982 the percent of all marriages that were remarriages increased from 24.4 to 31.6 for brides and from 25.7 to 33.6 for grooms (Tables 3.7 and 3.8). The proportion of all marriages which are remarriages is displayed graphically in Figure 3.2 for the period 1960-1981. Between 1960 and 1965, the proportion of remarriages dropped. Since 1965, this proportion has increased. The increase in the period 1972 through 1975 was especially marked for both sexes.

The frequency of remarriages among females increased by 8.1 percent between 1972 and 1982, while the number of brides who had been married at least three times previously increased by 17.5 percent. The increases for males were similar. Total remarriages increased by 7.2 percent and fourth or higher order marriages increased in frequency by 38.7 percent between 1972 and 1982 (Tables 3.9 and 3.10).

As remarriages can only occur when a prior marriage has been terminated by divorce, annulment or death of a spouse, it is apparent that persons remarrying will be generally older. Tables 3.9 and 3.10 demonstrate that the order of marriage has a strong positive relationship with the age of both brides and grooms. Note, however, the downward shift between 1972 and 1982 in the age distribution for third and higher order marriages. The median age at marriage for third marriages declined by three years for brides and by two years for grooms during this period, while for fourth and higher order marriages the median age declined by two years for brides and for grooms.

Table 3.6
Marriages by Age of Bride and Age of Groom, Michigan Occurrences, 1982

AGE OF GROOM	AGE OF BRIDE													
	TOTAL	UNDER 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 AND OVER	NOT STATED
Total	80,032	14,017	31,001	16,126	7,757	4,166	2,453	1,537	990	672	593	366	348	6
Under 20	5,323	4,224	976	95	25	1	1	1	-	-	-	-	-	-
20-24	28,514	8,148	17,522	2,332	382	96	27	4	-	-	-	-	-	3
25-29	19,983	1,290	9,271	7,314	1,682	337	61	18	8	1	-	-	-	1
30-34	10,075	243	2,298	3,991	2,591	727	170	47	5	3	-	-	-	-
35-39	5,748	70	635	1,571	1,769	1,209	370	96	19	6	1	2	-	-
40-44	3,268	27	210	509	753	870	629	190	60	12	6	-	2	-
45-49	2,218	8	45	190	335	557	553	378	124	25	2	-	-	1
50-54	1,592	3	26	83	139	222	369	381	262	74	28	3	2	-
55-59	1,183	1	8	30	50	104	196	240	264	189	84	15	2	-
60-64	853	1	4	3	20	33	57	123	147	205	183	62	15	-
65-69	590	1	4	7	7	7	11	41	73	100	171	120	48	-
70 and Over	684	1	2	1	4	3	9	18	28	57	118	164	279	-
Not Stated	1	-	-	-	-	-	-	-	-	-	-	-	-	1

Table 3.7
Age at First Marriage and Remarriage: Bride, Michigan Occurrences, 1972 and 1982

AGES	1972				1982			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20.....	34,439	33,948	433	58	14,017	13,884	128	5
Percent....	36.5	47.6	1.9	77.3	17.5	25.4	0.5	26.3
20-24........	35,098	30,771	4,312	15	31,001	28,100	2,898	3
Percent....	37.2	43.1	18.7	20.0	38.7	51.3	11.5	15.8
25-29........	9,407	4,615	4,792	-	16,126	9,776	6,345	5
Percent....	10.0	6.5	20.8	-	20.1	17.9	25.1	26.3
30-34........	4,432	1,048	3,383	1	7,757	2,117	5,638	2
Percent....	4.7	1.5	14.7	1.3	9.7	3.9	22.3	10.5
35-44........	5,162	620	4,542	-	6,619	654	5,962	3
Percent....	5.5	0.9	19.7	-	8.3	1.2	23.6	15.8
45 or Over...	5,901	367	5,533	1	4,506	211	4,294	1
Percent....	6.2	0.5	24.1	1.3	5.6	0.4	17.0	5.3
Not Stated...	8	4	4	-	6	4	2	-
Percent....	0.0	0.0	0.0	-	0.0	0.0	0.0	-
Total........	94,447	71,373	22,999	75	80,032	54,746	25,267	19
Percent....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	21	20	32	17	24	22	32	*

Table 3.8
Age at First Marriage and Remarriage: Groom, Michigan Occurrences, 1972 and 1982

AGES	1972				1982			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20.....	16,501	16,416	45	40	5,323	5,309	12	2
Percent....	17.5	23.4	0.2	50.0	6.7	10.0	0.0	15.4
20-24........	42,220	39,641	2,550	29	28,514	27,303	1,209	2
Percent....	44.7	56.5	10.5	36.3	35.6	51.4	4.5	15.4
25-29........	15,142	10,048	5,088	6	19,983	14,887	5,090	6
Percent....	16.0	14.3	21.0	7.5	25.0	28.0	18.9	46.2
30-34........	6,042	2,139	3,902	1	10,075	4,025	6,049	1
Percent....	6.4	3.1	16.1	1.3	12.6	7.6	22.5	7.7
35-44........	6,563	1,174	5,387	2	9,016	1,236	7,780	-
Percent....	6.9	1.7	22.2	2.5	11.3	2.3	28.9	-
45 or Over...	7,977	702	7,273	2	7,120	374	6,744	2
Percent....	8.4	1.0	30.0	2.5	8.9	0.7	25.1	15.4
Not Stated...	2	-	2	-	1	-	1	-
Percent....	0.0	-	0.0	-	0.0	-	0.0	-
Total........	94,447	70,120	24,247	80	80,032	53,134	26,885	13
Percent....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	23	21	35	20	26	23	35	*

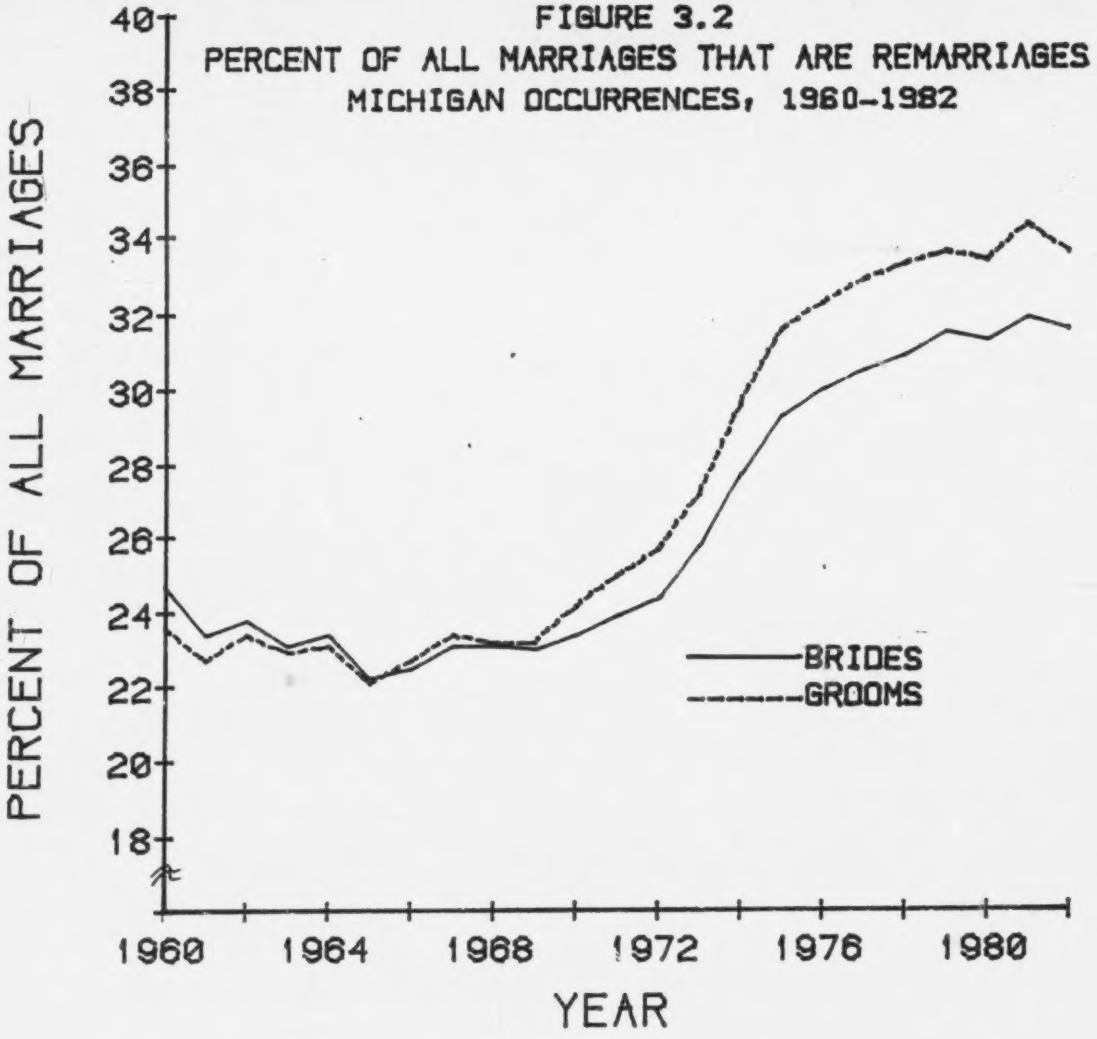

FIGURE 3.2
PERCENT OF ALL MARRIAGES THAT ARE REMARRIAGES
MICHIGAN OCCURRENCES, 1960-1982

Table 3.9
Remarriages of Brides by Age and Order of Marriage, Michigan Occurrences, 1972 and 1982

AGES	1972				1982			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages....	94,447	18,321	3,815	863	80,032	19,814	4,439	1,014
Under 20....	34,439	429	4	-	14,017	126	2	-
20-24.......	35,098	4,079	220	13	31,001	2,778	111	9
25-29.......	9,407	4,158	566	68	16,126	5,575	706	64
30-34.......	4,432	2,692	580	111	7,757	4,397	1,075	166
35-39.......	2,847	1,773	544	127	4,166	2,572	885	219
40-44.......	2,315	1,425	534	139	2,453	1,503	593	190
45 or Over..	5,901	3,761	1,367	405	4,506	2,861	1,067	366
Not Stated..	8	4	-	-	6	2	-	-
Median Age at Last Birthday	21	30	39	43	24	31	36	41

Table 3.10
Remarriages of Grooms by Age and Order of Marriage, Michigan Occurrences, 1972 and 1982

AGES	1972				1982			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages....	94,447	19,593	3,897	757	80,032	20,994	4,841	1,050
Under 20....	16,501	45	-	-	5,323	11	1	-
20-24.......	42,220	2,471	76	3	28,514	1,177	32	-
25-29.......	15,142	4,630	425	33	19,983	4,693	378	19
30-34.......	6,042	3,257	585	60	10,075	5,014	917	118
35-39.......	3,644	2,232	555	96	5,748	3,568	1,034	190
40-44.......	2,919	1,833	547	124	3,268	2,068	726	194
45 or Over..	7,977	5,123	1,709	441	7,120	4,463	1,752	529
Not Stated..	2	2	-	-	1	-	1	-
Median Age at Last Birthday	23	33	42	47	26	34	40	45

Changes in the frequency of remarriages have varied substantially in different age groups. Among persons under age 25 of both sexes the number of remarriages declined, with the largest relative declines occurring among those under age 20. The number of brides between ages 25 and 29 who had previously been married increased by 32.4 percent between 1972 and 1982, while that of grooms held stable. The largest relative increase in numbers of remarriages for males and females occurred in the age group 30-34 years (55.0 percent for males and 66.7 percent for females). Numbers of remarriages also increased substantially for persons 35-44 years of age. For females and males 45 and over the number of remarriages declined.

The most frequent age interval for remarriage among males was 45 years of age or older in 1972 and 35-44 years of age in 1982. For females the most frequent age of remarriage shifted from the 45 and over age group in 1972 to the 25-29 year age group in 1982 (Table 3.7 and 3.8).

FIRST MARRIAGES

First marriages are an interesting component of all marriages in that they constitute an event that can never be duplicated. The frequency of first marriages can not be directly affected by rates of divorce or deaths to married persons and as such reflects the propensity of the population as a whole to enter into marital agreements.

There has been a general decline in both the number and rate of first marriages between 1972 and 1982. The number of first marriages dropped 23.3 percent for women and 24.2 percent for men. The rate of first marriages dropped 25.2 percent for women and 25.8 percent for men. This downward trend in the number and rate of first marriages has not been consistent, however. For men and women, the number and rate of first marriages remained fairly constant in 1971 and 1973, dropped between 1973 and 1976, increased between 1976 and 1979, and fell in 1980, 1981 and 1982 (Tables 3.11, 3.12, 3.13 and 3.14).

Changes in the frequency of first marriages have varied in different age groups. The greatest decline in first marriages occurred in the under 20 age group for both brides and grooms, and the decline has been consistent over the period 1972-1982. The number of first marriages in the under 20 age group dropped by 59.1 percent for brides and by 67.7 percent for grooms between 1972 and 1982 while the corresponding rate for first marriages dropped 59.2 percent for brides and 68.4 percent for grooms. The number and rate of first marriages also declined substantially for grooms in the 20-24 year age group.

Table 3.11
First Marriages by Age of Bride, Michigan Occurrences, 1972-1982

AGE OF BRIDE	YEAR										
	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972
All Ages	54,746	58,006	59,656	61,281	60,956	59,832	57,860	58,554	63,564	70,076	71,373
15-19 Years[1]	13,884	15,723	17,541	19,531	20,858	22,341	23,208	24,723	28,238	32,658	33,948
20-24 Years	28,100	29,931	30,620	31,260	30,356	28,893	27,014	26,604	28,153	30,249	30,771
25-29 Years	9,776	9,466	8,895	8,059	7,412	6,348	5,634	5,189	5,094	5,036	4,615
30-34 Years	2,117	2,029	1,781	1,595	1,469	1,377	1,113	1,075	1,108	1,108	1,048
35-39 Years	488	449	415	402	418	385	381	422	382	395	403
40-44 Years	166	160	160	166	165	173	205	177	204	228	217
45-49 Years	73	82	95	110	104	118	126	132	152	154	139
50 or Over	138	165	149	156	173	197	177	229	233	247	228
Not Stated	4	1	-	2	1	-	2	3	-	1	4

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[1] Brides under age 15 included in age 15-19.

Table 3.12
First Marriages by Age of Groom, Michigan Occurrences, 1972-1982

AGE OF GROOM	YEAR										
	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972
All Ages	53,134	56,017	57,840	59,356	58,806	57,737	55,962	56,655	61,884	68,682	70,120
15-19 Years	5,309	6,070	6,810	7,906	8,267	9,481	10,206	11,188	13,209	15,468	16,416
20-24 Years	27,303	29,698	31,256	32,501	32,900	32,269	30,961	31,327	34,283	38,436	39,641
25-29 Years	14,887	14,834	14,654	13,924	13,026	11,706	10,916	10,336	10,455	10,596	10,048
30-34 Years	4,025	3,790	3,580	3,360	2,996	2,653	2,288	2,157	2,208	2,289	2,139
35-39 Years	956	879	816	837	797	747	665	680	716	749	759
40-44 Years	280	279	292	332	297	324	343	322	339	418	415
45-49 Years	137	167	170	160	183	198	226	241	260	314	294
50 or Over	237	297	262	335	340	358	355	404	412	412	408
Not Stated	-	3	-	1	-	1	2	-	2	-	-

Table 3.13
First Marriage Rates[1] by Age of Bride, Michigan Occurrences, 1972-1982

AGE OF BRIDE	YEAR										
	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972
All Ages	11.6	12.2	12.6	12.9	12.9	12.8	12.4	12.6	13.7	15.1	15.5
15-19 Years[2]	31.4	36.5	39.3	43.8	46.9	50.4	52.5	55.8	63.6	73.7	76.9
20-24 Years	60.4	66.1	67.6	69.8	69.1	67.1	63.9	63.9	68.7	75.2	78.1
25-29 Years	22.9	22.8	21.8	20.1	19.1	16.8	15.4	14.5	14.7	15.0	14.2
30-34 Years	5.6	5.3	4.9	4.5	4.3	4.2	3.5	3.5	3.7	3.9	3.8
35-39 Years	1.7	1.5	1.4	1.4	1.5	1.4	1.4	1.6	1.4	1.5	1.6
40-44 Years	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.9	0.8
45-49 Years	0.3	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.5
50 or Over	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2

[1] Number of persons married per 1,000 population.
[2] Brides under 15 included in age 15-19.

Table 3.14
First Marriage Rates[1] by Age of Groom, Michigan Occurrences, 1972-1982

AGE OF GROOM	YEAR										
	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972
All Ages	11.8	12.4	12.8	13.2	13.1	12.9	12.6	12.7	13.9	15.5	15.9
15-19 Years	11.7	13.8	15.0	17.4	18.3	21.1	22.8	25.0	29.5	34.7	37.0
20-24 Years	59.1	67.3	70.8	75.0	78.1	78.8	77.7	80.7	90.6	104.6	111.4
25-29 Years	35.6	36.5	36.7	35.5	34.2	31.7	30.4	29.6	30.7	32.1	31.5
30-34 Years	10.9	10.3	10.3	9.9	9.1	8.4	7.5	7.3	7.7	8.3	8.1
35-39 Years	3.4	3.1	2.9	3.0	3.0	2.8	2.6	2.7	2.8	3.0	3.1
40-44 Years	1.3	1.2	1.3	1.4	1.3	1.4	1.4	1.3	1.4	1.7	1.6
45-49 Years	0.7	0.8	0.8	0.7	0.8	0.9	1.0	1.0	1.1	1.3	1.2
50 or Over	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4

[1] Number of persons married per 1,000 population.

There were significant increases in the number and rate of first marriages of both brides and grooms between ages 25 and 34. These increases were especially sharp during the latter half of the period. Between 1976 and 1982 the number of first marriages increased by 36.4 percent and 75.9 percent for grooms aged 25-29 and 30-34 years respectively. For brides the comparable figures were 73.5 percent and 90.2 percent. Since 1972 the number of first marriages has declined for persons aged 40 or over.

MEDIAN AGE AT FIRST MARRIAGE

The median age at first marriage declined for both brides and grooms between 1953 and the mid-1960's. This decline was greater for males than for females. Grooms were 34 months older than brides at the median in 1953, 23 months older in 1963 and 20 months older in 1968. During the past thirteen years, the median age at first marriage has increased by a similar amount for both males and females. Grooms were 21 months older than brides at the median in 1982.

The median age at first marriage in 1982 was 22 years 1 month for brides and 23 years 10 months for grooms. The 1982 figures are the highest median ages at first marriage recorded during the period (Figure 3.3).

DIVORCES AND ANNULMENTS

The number of reported divorces and annulments reached a record high in 1980, both in Michigan and the nation. In 1981, the frequency for Michigan declined while the national figure reached another record high. By 1982, the Michigan frequency had declined by 11.7 percent to 39,739. Nationally, the number of divorces also declined in 1982 by 3.2 percent (Table 3.15).

The number of divorces and annulments reported for Michigan in 1982 was 2.4 times the number for 1960. In recent years the number of divorces and annulments has begun to level off. Between 1960 and 1970 the number of divorces and annulments increased by 80 percent. During the decade of the seventies the increase was 50 percent. Between 1970 and 1975 the number of divorces and annulments increased by 36 percent, and from 1975 to 1980 the increase was 10 percent. During the latter period the first annual declines since 1963 occurred. In 1981 and 1982 the number again declined.

The number of persons divorced in Michigan per thousand population decreased from 9.7 in 1980 to 8.6 in 1982. The national rate also declined from 10.6 to 10.2. Michigan's

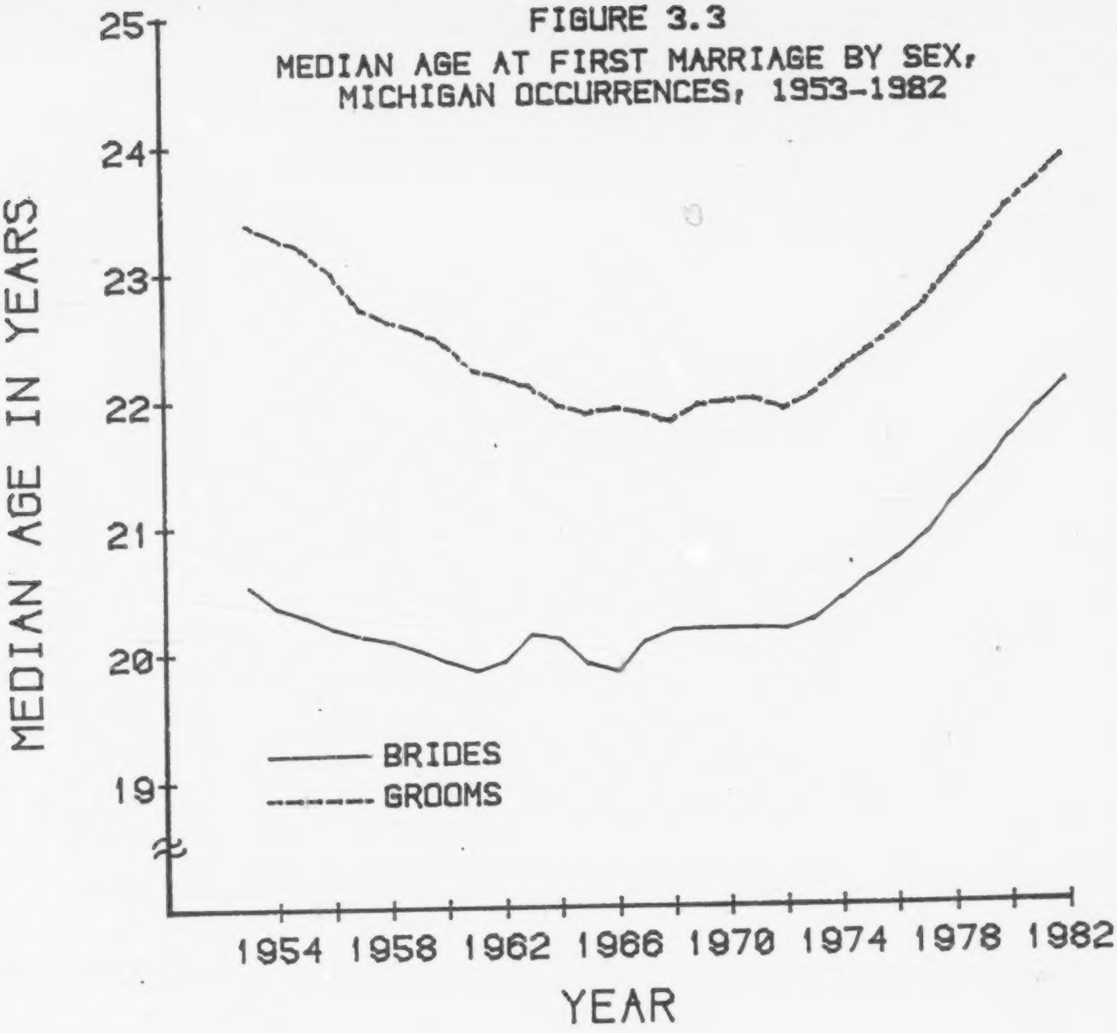


FIGURE 3.3
MEDIAN AGE AT FIRST MARRIAGE BY SEX,
MICHIGAN OCCURRENCES, 1953-1982

Table 3.15
Number of Divorces and Annulments, and Divorce and Annulment Rates[1], Michigan and United States[2] Occurrences, Selected Years, 1920-1982

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
170,505	3.2	1920	8,679	4.7
195,961	3.2	1930	10,639	4.4
264,000	4.0	1940	12,054	4.6
385,144	5.1	1950	15,979	5.0
393,000	4.4	1960	16,656	4.3
414,000	4.5	1961	16,219	4.1
413,000	4.4	1962	17,500	4.4
428,000	4.5	1963	17,479	4.4
450,000	4.7	1964	19,400	4.8
479,000	4.9	1965	20,305	5.0
499,000	5.1	1966	21,727	5.2
523,000	5.3	1967	23,620	5.5
584,000	5.8	1968	25,400	5.9
639,000	6.3	1969	28,347	6.5
708,000	7.0	1970	29,934	6.7
773,000	7.5	1971	31,790	7.1
845,000	8.1	1972	35,505	7.9
915,000	8.7	1973	37,128	8.2
977,000	9.2	1974	39,940[3]	8.8[3]
1,036,000	9.6	1975	40,782	9.0
1,083,000	10.0	1976	43,101	9.5
1,091,000	9.9	1977	43,036	9.4
1,130,000	10.2	1978	45,029	9.8
1,181,000	10.5	1979	44,242	9.6
1,189,000	10.5	1980	45,047	9.7
1,219,000Pr.	10.6Pr.	1981	43,167	9.3
1,180,000Pr.	10.2Pr.	1982	39,739	8.6

[1] Number of persons whose marriages ended in divorce or annulment per 1,000 population.

[2] United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Estimate.

divorce rate was higher than that for the United States each year from 1900 through 1947. In the following 35 years the Michigan divorce rate has been at or below the national rate 28 times, including each of the past 13 years (Table 3.15 and Figure 3.4). The lowest rate in this century for Michigan was 2.0 in the years 1900 and 1901 while the lowest national rate was 1.5 in 1900. The highest divorce rate for Michigan during this century was recorded in 1946 (10.2).

The number of children under 18 of couples dissolving marriages in 1982 was at least 41,156 (Table 3.16). This is 11.6 percent below the number in 1972. The number of children affected by divorce has however increased as a proportion of all children. This ratio increased from 6.5 per 1,000 Michigan children in 1960 to 12.5 in 1970 and to 17.0 by 1978 (Table 3.17). Since 1978 this rate has held stable, declining in 1982. The average number of children per divorce has, nonetheless, dropped from 1.36 children in 1970 to 1.04 in 1982. The decline primarily reflects a decline in the proportion of divorces involving three or more children. It should be noted that Michigan live birth data indicate that there has been a decline in the relative proportion of women having third or higher order live births over the past decade. Data for the United States indicate a similar pattern.

Approximately 18 percent of the persons divorced in 1982 in Michigan were from 25 to 29 years of age (Table 3.18). The median age for husbands was 33 years and 9 months, while the median age for wives was 30 months younger (31 years and 3 months). Roughly 14 percent of the wives were under 25 years of age compared to only 7.7 percent of the husbands. Conversely, 4.7 percent of the wives were 50 years of age or older compared to 7.5 percent of the husbands.

In 10.2 percent of the marriages dissolved in Michigan in 1982 the couple separated less than one year after the marriage took place, and in nearly half of the marriages ended by divorce or annulment the separation took place within five years of the date of marriage (Table 3.19). The median duration of marriage at the time of dissolution was 7 years and 5 months. The median length of time between the date of separation and the date of dissolution of the marriage was 21 months.

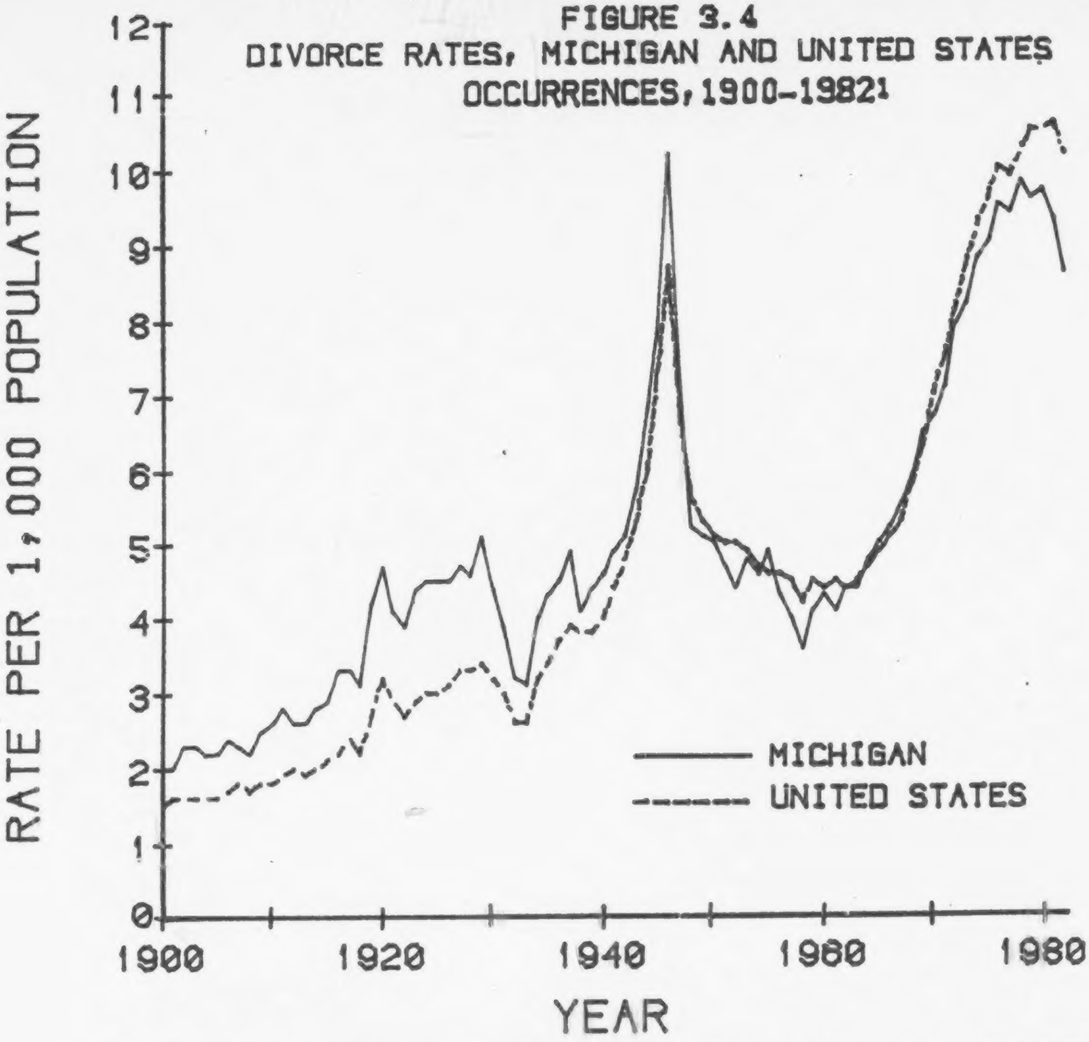


FIGURE 3.4
DIVORCE RATES, MICHIGAN AND UNITED STATES
OCCURRENCES, 1900-1982[1]

[1] UNITED STATES RATES FOR 1981 AND 1982 ARE PROVISIONAL

Table 3.16
Divorces and Annulments by Children Under 18 Present, Michigan Occurrences, 1972 and 1982

NUMBER OF CHILDREN	DIVORCES AND ANNULMENTS				ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	
	NUMBER		PERCENT			
	1972	1982	1972	1982	1972	1982
Zero	13,725	14,300	38.7	36.0	-	-
One	8,322	9,793	23.4	24.6	8,322	9,793
Two	6,811	8,728	19.2	22.0	13,622	17,456
Three	3,680	3,056	10.4	7.7	11,040	9,168
Four	1,720	811	4.8	2.0	6,880	3,244
Five or More	1,198	272	3.4	0.7	6,674	1,495
Not Stated	49	2,779	0.1	7.0	-	-
Total	35,505	39,739	100.0	100.0	46,538	41,156

[1] Total children for marriages involving 8 or more children under 18 is not available.

Table 3.17
Estimated Number of Children Involved in Divorces and Annulments, Average Number of Children Per Decree, and Rate per 1,000 Children Under 18 Years of Age, Michigan and the United States[1], Selected Years 1960-1982

MICHIGAN			Year	UNITED STATES		
Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age		Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age
19,209	1.15	6.5	1960	463,000	1.16	7.2
40,596	1.36	12.5	1970	870,000	1.22	12.5
43,430	1.37	13.4	1971	946,000	1.22	13.6
46,538	1.31	14.4	1972	1,021,000	1.20	14.7
48,153	1.18	15.8	1975	1,123,000	1.08	16.7
49,555	1.15	16.6	1976	1,117,000	1.03	16.9
47,569	1.11	16.3	1977	1,095,000	1.00	16.7
48,510	1.08	17.0	1978	1,147,000	1.01	17.7
47,019	1.07	16.8	1979	1,181,000	1.00	18.4
46,603	1.04	16.9	1980	1,174,000	0.98	17.3
45,461	1.05	16.8	1981	---	---	---
41,156	1.04	15.8	1982[2]	---	---	---

[1] United States rates for 1971-1972 and 1975-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] There were 2,779 records on which the number of children under 18 years of age was not stated, compared to 3,430 in 1981.

Table 3.18
Divorces and Annulments by Age of Husband and Wife at Time of Decree, Michigan Occurrences, 1982

AGE	HUSBAND		WIFE	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Total	39,739	100.0	39,739	100.0
Under 20	91	0.3	500	1.8
20-24	2,976	10.4	4,979	17.6
25-29	6,597	23.1	7,065	24.9
30-34	6,066	21.2	5,847	20.6
35-39	4,789	16.8	4,184	14.8
40-44	3,150	11.0	2,525	8.9
45-49	1,928	6.7	1,366	4.8
50-54	1,329	4.7	896	3.2
55-59	835	2.9	494	1.7
60-64	392	1.4	257	0.9
65-69	236	0.8	150	0.5
70-74	110	0.4	60	0.2
75+	77	0.3	35	0.1
Unknown	11,163	000	11,381	000
Median Age	33 years 9 months	000	31 years 3 months	000

[1] Based on records with known age only.

Table 3.19
Divorces and Annulments by Duration of Marriage at Time of Separation and at Time of Dissolution, Michigan Occurrences, 1982

DURATION IN YEARS	AT TIME OF SEPARATION		AT TIME OF DISSOLUTION	
	NUMBER	PERCENT'	NUMBER	PERCENT'
Less Than 1	4,038	11.1	1,265	3.2
1-4	12,633	34.7	12,552	31.8
5-9	8,565	23.5	10,517	26.7
10-14	4,923	13.5	6,441	16.3
15-19	2,967	8.1	3,846	9.8
20-24	1,702	4.7	2,307	5.9
25-29	909	2.5	1,295	3.3
30-34	449	1.2	654	1.7
35-39	174	0.5	350	0.9
40-44	47	0.1	121	0.3
45-49	15	0.0	41	0.1
50+	11	0.0	22	0.1
Unknown	3,306	000	328	000
Total	39,739	100.0	39,739	100.0
Median Duration	5 years 8 months	000	7 years 5 months	000

'Based on records with known duration only.

REFERENCE APPENDIX

SECTION IV

TABLE 4.1

POPULATION, LIVE BIRTHS, DEATHS (ALL AGES, INFANT, NEONATAL, POSTNEONATAL, PERINATAL, FETAL, AND MATERNAL), MARRIAGES AND DIVORCES, MICHIGAN, 1900-1982

(Deaths exclusive of fetal deaths. Perinatal deaths include deaths under 1 week and fetal deaths. Divorces include annulments.)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[1]	28-364 Days	Peri-natal	Fetal	Maternal		
1900	2,420,982	43,699	32,453	6,866				1,325	452	23,295	2,435
1901	2,459,901	43,221	32,834	6,319				1,501	531	24,079	2,448
1902	2,498,820	45,546	31,472	5,949				1,793	468	25,653	2,828
1903	2,537,739	46,020	33,176	6,488				1,814	427	26,029	2,945
1904	2,576,658	47,508	34,494	6,419				1,911	436	24,918	2,808
1905	2,615,578	46,976	34,679	7,054				2,044	416	26,307	2,825
1906	2,654,497	58,599	37,033	7,952				2,358	400	27,519	3,192
1907	2,693,416	59,029	36,701	6,906				2,358	391	27,940	3,107
1908	2,732,335	64,772	36,761	7,697				2,694	440	25,765	3,020
1909	2,771,254	64,323	36,313	7,443				2,540	405	27,353	3,516
1910	2,810,173	64,109	39,913	7,998				2,559	431	29,039	3,716
1911	2,895,997	65,756	38,007	7,131				2,716	451	29,859	4,125
1912	2,981,821	69,537	38,804	6,985				2,906	396	31,694	3,838
1913	3,067,645	73,058	40,827	7,659				2,953	528	33,529	3,978
1914	3,153,469	76,761	39,906	7,431				3,113	507	35,316	4,395
1915	3,239,293	81,100	40,441	6,943				3,357	488	35,527	4,757
1916	3,325,116	87,062	46,047	8,415				3,689	503	40,143	5,540
1917	3,410,940	89,419	47,236	7,916				3,550	586	42,791	5,627
1918	3,496,764	91,261	54,617	8,197				3,686	709	33,260	5,493
1919	3,582,588	84,062	45,636	7,560				3,361	578	45,579	7,469
1920	3,668,412	92,245	51,982	8,587				3,770	795	50,805	8,679
1921	3,785,799	96,035	44,186	7,584				3,669	605	41,508	7,676
1922	3,903,186	90,042	43,817	6,730				3,779	551	43,561	7,591
1923	4,020,573	92,956	49,333	7,477				3,657	583	49,569	8,745
1924	4,137,960	98,187	47,304	7,088	4,119	2,969	6,791	3,703	636	49,788	9,400
1925	4,255,347	98,983	49,417	7,498	4,022	3,476	6,667	3,670	629	46,276	9,650
1926	4,372,734	98,289	54,080	7,620	4,054	3,566	6,773	3,816	631	39,788	9,795
1927	4,490,121	99,940	50,600	6,766	3,915	2,851	6,794	3,834	667	36,276	10,617
1928	4,607,508	97,462	54,755	6,806	3,739	3,067	6,594	3,701	603	37,300	10,615
1929	4,724,895	98,695	56,117	6,605	3,777	2,828	6,613	3,710	617	36,816	12,094
1930	4,842,325	98,882	51,561	6,213	3,624	2,589	6,518	3,714	597	29,482	10,639
1931	4,883,703	90,547	48,068	5,187	3,084	2,103	5,643	3,220	539	28,856	9,507
1932	4,925,081	85,254	49,569	4,630	2,798	1,832	5,210	2,980	493	28,552	7,889
1933	4,966,459	80,482	48,507	4,094	2,591	1,503	4,906	2,776	447	33,132	7,671
1934	5,007,837	83,944	50,440	4,377	2,717	1,660	4,781	2,607	450	43,241	10,124
1935	5,049,216	87,403	51,051	4,170	2,550	1,620	4,832	2,717	438	45,313	10,844
1936	5,090,594	88,457	54,777	4,479	2,647	1,832	4,726	2,625	425	47,023	11,419
1937	5,131,972	91,566	53,468	4,374	2,700	1,674	4,919	2,707	326	47,954	12,472
1938	5,173,350	96,962	50,678	4,319	2,734	1,585	4,984	2,732	345	30,105	10,646
1939	5,214,728	94,432	52,017	3,952	2,594	1,358	4,706	2,572	280	37,725	11,589

TABLE 4.1 (continued)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal		
1940	5,256,106	99,106	52,092	4,022	2,629	1,393	4,749	2,602	292	46,342	12,054
1941	5,437,546	107,498	52,671	4,166	2,687	1,479	4,991	2,769	298	50,989	13,317
1942	5,538,856	124,068	52,738	4,606	3,091	1,515	5,581	3,067	260	51,582	14,085
1943	5,377,329	125,441	56,774	4,804	2,979	1,825	5,563	3,213	237	44,385	15,259
1944	5,377,329	113,586	54,016	4,326	2,784	1,542	5,140	2,874	198	41,678	18,356
1945	5,435,092	111,557	53,641	4,008	2,670	1,338	4,906	2,703	166	48,329	21,133
1946	5,708,415	138,572	54,856	4,541	3,323	1,218	5,978	3,168	163	78,808	29,158
1947	6,069,000	160,275	56,807	5,055	3,677	1,378	6,583	3,422	173	71,319	21,386
1948	6,195,000	153,726	56,520	4,617	3,352	1,265	5,968	3,132	120	61,986	16,017
1949	6,352,000	156,469	57,107	4,520	3,232	1,288	5,746	2,994	105	53,109	16,274
1950	6,371,766	160,055	57,567	4,214	3,043	1,171	5,781	3,095	91	58,180	15,979
1951	6,545,000	172,451	59,181	4,505	3,296	1,209	6,088	3,158	94	53,411	15,446
1952	6,708,000	177,835	59,138	4,689	3,414	1,275	6,266	3,224	82	50,487	14,925
1953	6,852,000	182,968	62,087	4,728	3,369	1,339	6,188	3,180	79	53,308	16,537
1954	7,024,000	192,104	60,706	4,795	3,560	1,235	6,415	3,249	94	51,243	16,281
1955	7,236,000	196,294	63,087	4,873	3,707	1,166	6,381	3,029	61	55,698	17,676
1956	7,516,000	206,068	64,352	5,047	3,796	1,251	6,655	3,245	84	57,068	16,228
1957	7,803,000	208,488	66,435	5,093	3,884	1,209	6,668	3,154	79	55,121	15,442
1958	7,866,000	202,690	65,899	4,980	3,789	1,191	6,516	3,101	69	55,159	14,040
1959	7,960,000	198,301	66,812	4,846	3,674	1,172	6,250	2,928	72	58,826	16,168
1960	7,823,194	195,056	67,912	4,702	3,580	1,122	6,247	3,008	75	61,090	16,656
1961	7,903,000	192,825	67,375	4,604	3,475	1,129	5,875	2,735	78	63,320	16,219
1962	7,939,000	182,790	70,049	4,367	3,251	1,116	5,669	2,703	56	65,002	17,500
1963	8,030,000	178,871	72,438	4,150	3,109	1,041	5,407	2,540	71	68,160	17,479
1964	8,100,000	175,103	72,129	4,043	3,071	972	5,293	2,466	62	73,911	19,400
1965	8,199,283	166,464	73,665	3,936	2,909	1,027	5,139	2,475	54	81,247	20,305
1966	8,314,070	165,794	74,596	3,751	2,830	921	4,909	2,295	54	83,903	21,727
1967	8,615,000	162,756	75,360	3,595	2,714	881	4,693	2,195	52	84,363	23,620
1968	8,675,000	159,058	76,855	3,438	2,617	821	4,476	2,064	44	90,984	25,400
1969	8,734,000	165,760	76,693	3,356	2,550	806	4,488	2,175	27	93,392	28,347
1970	8,875,083	171,667	76,321	3,492	2,683	809	4,522	2,060	29	91,933	29,934
1971	8,972,000	162,244	77,395	3,157	2,412	745	4,139	1,923	32	92,134	31,790
1972	9,025,000	146,854	79,210	2,801	2,115	686	3,700	1,770	35	94,447	35,505
1973	9,072,000	141,550	78,522	2,561	1,902	659	3,392	1,682	26	94,486	37,128
1974	9,109,000	137,414	76,143	2,387	1,734	653	2,947	1,438	19	88,023	39,940[3]
1975	9,108,000	133,931	74,522	2,205	1,563	642	2,673	1,356	16	82,856	40,782
1976	9,117,000	131,378	75,801	1,978	1,424	554	2,495	1,264	14	82,753	43,101
1977	9,157,000	138,416	74,144	1,945	1,367	578	2,452	1,284	11	86,088	43,036
1978	9,202,000	138,802	74,773	1,931	1,281	650	2,302[4]	1,201[4]	15	88,333	45,029
1979	9,249,000	144,452	73,480	1,921	1,295	626	2,285[4]	1,175[4]	11	89,450	44,242
1980	9,262,078	145,162	74,991	1,851	1,284	567	2,235[4]	1,135[4]	16	86,898	45,047
1981	9,270,000	140,579	75,818	1,851	1,281	570	2,151[4]	1,040[4]	7	85,252	43,167
1982	9,227,327	137,950	75,536	1,672	1,202	470	1,988	953	11	82,633	39,739

[1]-1971-1979 population estimates have been revised by the U.S. Census Bureau.
[2]-For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.
[3]-Estimate.
[4]-Revised.

TABLE 4.2
LIVE BIRTH RATES, DEATH RATES (ALL AGES, INFANT, NEONATAL, POSTNEONATAL PERINATAL, AND MATERNAL), FETAL DEATH RATIOS, MARRIAGE AND DIVORCE RATES, MICHIGAN, 1900-1982[1]

(Birth rate, death rate for all ages, rate of persons married and rate of persons divorced per 1,000 population. Fetal death ratio, mortality rates for deaths under 1 year, under 28 days, and from 28-364 days per 1,000 live births. Maternal mortality rate per 10,000 live births. Perinatal mortality rate per 1,000 live births and fetal deaths.)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[1]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1900	18.1	13.4	157.1				30.3	103.4	19.2	2.0
1901	17.6	13.3	146.2				34.7	122.9	19.6	2.0
1902	18.2	12.6	130.6				39.4	102.8	20.5	2.3
1903	18.1	13.1	141.0				39.4	92.8	20.5	2.3
1904	18.4	13.4	135.1				40.2	91.8	19.3	2.2
1905	18.0	13.3	150.2				43.5	88.6	20.1	2.2
1906	22.1	14.0	135.7				40.2	68.3	20.7	2.4
1907	21.9	13.6	117.0				39.9	66.2	20.7	2.3
1908	23.7	13.5	118.8				41.6	67.9	18.9	2.2
1909	23.2	13.1	115.7				39.5	63.0	19.7	2.5
1910	22.8	14.2	124.8				39.9	67.2	20.7	2.6
1911	22.7	13.1	108.4				41.3	68.6	20.6	2.8
1912	23.3	13.0	100.4				41.8	56.9	21.3	2.6
1913	23.8	13.3	104.8				40.4	72.3	21.9	2.6
1914	24.3	12.7	96.8				40.6	66.0	22.4	2.8
1915	25.0	12.5	85.6				41.4	60.2	21.9	2.9
1916	26.2	13.8	96.7				42.4	57.8	24.1	3.3
1917	26.2	13.8	88.5				39.7	65.5	25.1	3.3
1918	26.1	15.6	89.8				40.4	77.7	19.0	3.1
1919	23.5	12.7	89.9				40.0	68.8	25.4	4.2
1920	25.1	14.2	93.1				40.9	86.2	27.7	4.7
1921	25.4	11.7	79.0				38.2	63.0	21.9	4.1
1922	23.1	11.2	74.7				42.0	61.2	22.3	3.9
1923	23.1	12.3	80.4				39.3	62.7	24.7	4.4
1924	23.7	11.4	72.2	41.9	30.2	66.7	37.7	64.8	24.1	4.5
1925	23.3	11.6	75.7	40.6	35.1	64.9	37.1	63.5	21.7	4.5
1926	22.5	12.4	77.5	41.2	36.3	66.3	38.8	64.2	18.7	4.5
1927	22.3	11.3	67.7	39.2	28.5	65.5	38.4	66.7	16.2	4.7
1928	21.2	11.9	69.8	38.4	31.5	65.2	38.0	61.9	16.2	4.6
1929	20.9	11.9	66.9	38.3	28.7	64.6	37.6	62.5	15.6	5.1
1930	20.4	10.6	62.8	36.6	26.2	63.5	37.6	60.4	12.2	4.4
1931	18.5	10.1	57.3	34.1	23.2	60.2	35.6	59.5	11.8	3.9
1932	17.3	10.1	54.3	32.8	21.5	59.0	35.0	57.8	11.6	3.2
1933	16.2	9.8	50.9	32.2	18.7	58.9	34.5	55.5	13.3	3.1
1934	16.8	10.1	52.1	32.4	19.8	55.2	31.1	53.6	17.3	4.0
1935	17.3	10.1	47.7	29.2	18.5	53.6	31.1	50.1	17.9	4.3
1936	17.4	10.8	50.6	29.9	20.7	51.9	29.7	48.0	18.5	4.5
1937	17.8	10.4	47.8	29.5	18.3	52.2	29.6	35.6	18.7	4.9
1938	18.7	9.8	44.5	28.2	16.3	50.0	28.2	35.6	11.6	4.1
1939	18.1	10.0	41.8	27.5	14.4	48.5	27.2	29.6	14.5	4.4

TABLE 4.2 (continued)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1940	18.9	9.9	40.6	26.5	14.1	46.7	26.3	29.5	17.6	4.6
1941	19.8	9.7	38.8	25.0	13.8	45.3	25.8	27.7	18.8	4.9
1942	22.4	9.5	37.1	24.9	12.2	43.9	24.7	21.0	18.6	5.1
1943	23.3	10.6	38.3	23.7	14.5	43.2	25.6	18.9	16.5	5.7
1944	21.1	10.0	38.1	24.5	13.6	44.1	25.3	17.4	15.5	6.8
1945	20.5	9.9	35.9	23.9	12.0	42.9	24.2	14.9	17.8	7.8
1946	24.3	9.6	32.8	24.0	8.8	42.2	22.9	11.8	27.6	10.2
1947	26.4	9.4	31.5	22.9	8.6	40.2	21.4	10.8	23.5	7.1
1948	24.8	9.1	30.0	21.8	8.2	38.0	20.4	7.8	20.0	5.2
1949	24.6	9.0	28.9	20.7	8.2	36.0	19.1	6.7	16.7	5.1
1950	25.1	9.0	26.3	19.0	7.3	35.4	19.3	5.7	18.3	5.0
1951	26.3	9.0	26.1	19.1	7.0	34.7	18.3	5.5	16.3	4.7
1952	26.5	8.8	26.4	19.2	7.2	34.6	18.1	4.6	15.1	4.4
1953	26.7	9.1	25.8	18.5	7.3	33.2	17.4	4.3	15.6	4.8
1954	27.3	8.6	25.0	18.5	6.4	32.8	16.9	4.9	14.6	4.6
1955	27.1	8.7	24.8	18.9	5.9	32.0	15.4	3.1	15.4	4.9
1956	27.4	8.6	24.5	18.4	6.1	31.8	15.7	4.1	15.2	4.3
1957	26.7	8.5	24.4	18.6	5.8	31.5	15.1	3.8	14.1	4.0
1958	25.8	8.4	24.6	18.7	5.9	31.7	15.3	3.4	14.0	3.6
1959	24.9	8.4	24.4	18.5	5.9	31.1	14.8	3.6	14.8	4.1
1960	24.9	8.7	24.1	18.4	5.8	31.5	15.4	3.8	15.6	4.3
1961	24.4	8.5	23.9	18.0	5.9	30.0	14.2	4.0	16.0	4.1
1962	23.0	8.8	23.9	17.8	6.1	30.6	14.8	3.1	16.4	4.4
1963	22.3	9.0	23.2	17.4	5.8	29.8	14.2	4.0	17.0	4.4
1964	21.6	8.9	23.1	17.5	5.6	29.8	14.1	3.5	18.2	4.8
1965	20.3	9.0	23.6	17.5	6.2	30.4	14.9	3.2	19.8	5.0
1966	19.9	9.0	23.6	17.1	5.6	29.2	13.8	3.3	20.2	5.2
1967	18.9	8.7	22.1	16.7	5.4	28.4	13.5	3.2	19.6	5.5
1968	18.3	8.9	21.6	16.5	5.2	27.8	13.0	2.8	21.0	5.9
1969	19.0	8.8	20.2	15.4	4.9	26.7	13.1	1.6	21.4	6.5
1970	19.3	8.6	20.3	15.6	4.7	26.0	12.0	1.7	20.7	6.7
1971	18.1	8.6	19.5	14.9	4.6	25.2	11.9	2.0	20.5	7.1
1972	16.3	8.8	19.1	14.4	4.7	24.9	12.1	2.4	20.9	7.9
1973	15.6	8.7	18.1	13.4	4.7	23.7	11.9	1.8	20.8	8.2
1974	15.1	8.4	17.4	12.6	4.8	21.2	10.5	1.4	19.3	8.8[3]
1975	14.7	8.2	16.5	11.7	4.8	19.8	10.1	1.2	18.2	9.0
1976	14.4	8.3	15.1	10.8	4.2	18.8	9.6	1.1	18.2	9.5
1977	15.1	8.1	14.1	9.9	4.2	17.6	9.3	0.8	18.8	9.4
1978	15.1	8.1	13.9	9.2	4.7	16.4[4]	8.7[4]	1.1	19.2	9.8
1979	15.6	7.9	13.3	9.0	4.3	15.7[4]	8.1[4]	0.8	19.3	9.6
1980	15.7	8.1	12.8	8.8	3.9	15.3[4]	7.8[4]	1.1	18.8	9.7
1981	15.2	8.2	13.2	9.1	4.1	15.2[4]	7.4[4]	0.5	18.4	9.3
1982	15.0	8.2	12.1	8.7	3.4	14.3	6.9	0.8	17.9	8.6

[1] -1971-1979 birth, death, marriage and divorce rates have been recalculated using revised population estimates.
[2] -For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.
[3] -Estimate.
[4] -Revised.

TABLE 4.3

NUMBER OF LIVE BIRTHS BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1982

YEAR	AGE OF MOTHER								
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1920	92,740	34	8,129	26,344	26,251	17,521	10,427	3,523	336	175
1921	96,322	39	8,747	26,583	27,292	18,433	11,150	3,572	337	169
1922	90,209	28	8,125	24,575	25,154	17,690	10,584	3,485	343	225
1923	93,066	37	8,725	25,887	25,459	18,072	10,770	3,476	382	258
1924	98,025	38	9,877	28,000	25,781	18,707	11,395	3,682	321	224
1925	99,220	62	10,248	28,116	26,204	18,869	11,406	3,695	379	241
1926	98,781	76	10,496	28,479	25,876	18,444	11,219	3,568	354	269
1927	100,178	59	10,685	29,302	25,707	18,790	11,287	3,722	332	294
1928	97,797	54	10,788	28,895	25,003	17,953	10,913	3,558	315	318
1929	99,134	56	11,312	30,582	25,557	16,957	10,555	3,523	293	299
1930	99,325	60	11,476	29,956	25,861	17,125	10,684	3,582	291	290
1931	90,929	61	10,109	27,255	23,806	15,937	9,905	3,317	302	237
1932	85,736	62	9,297	25,686	22,608	14,988	9,314	3,250	291	240
1933	80,923	52	8,642	23,874	21,618	14,298	8,795	3,173	261	210
1934	83,925	48	9,039	25,458	22,507	14,968	8,391	3,050	259	205
1935	87,446	47	9,808	27,631	22,938	15,026	8,473	3,029	284	210
1936	88,427	53	9,764	28,681	23,584	14,814	8,194	2,866	274	197
1937	91,539	54	10,524	30,532	24,366	15,022	7,949	2,653	242	197
1938	96,963	64	11,024	32,581	26,116	15,690	8,397	2,698	253	140
1939	94,302	51	10,368	31,036	26,095	15,976	8,021	2,416	209	130
1940	99,021	51	10,671	32,960	27,860	16,549	8,146	2,390	202	192
1941	107,458	50	11,309	36,833	31,067	17,132	8,351	2,361	200	155
1942	123,886	66	12,721	43,947	36,034	19,367	8,985	2,445	202	119
1943	125,778	67	11,934	41,627	37,773	21,449	9,980	2,615	184	149
1944	114,700	76	10,113	36,096	33,654	21,094	10,636	2,714	182	135
1945	112,655	73	9,294	32,790	33,143	22,831	11,185	2,970	229	140
1946	139,277	72	10,899	45,999	41,985	25,184	11,811	3,002	223	102
1947	161,085	91	15,594	55,954	47,793	26,296	12,009	3,073	182	93
1948	154,730	95	16,245	53,520	45,059	25,268	11,391	2,888	173	91
1949	157,178	117	16,404	53,608	46,363	25,971	11,565	2,906	181	63
1950	160,955	111	16,310	53,442	48,186	27,422	12,392	2,831	169	92
1951	173,506	104	17,974	57,340	52,044	29,674	13,086	3,040	160	84
1952	178,634	134	17,206	58,012	54,198	31,756	13,880	3,176	220	52
1953	182,810	166	18,510	58,070	54,734	32,948	14,798	3,350	190	44
1954	192,332	208	20,522	60,776	55,962	35,152	15,862	3,598	220	32
1955	196,623	195	21,417	61,952	56,462	35,968	16,554	3,862	198	15
1956	206,226	192	22,808	66,332	58,392	36,870	17,282	4,172	164	14
1957	208,808	190	23,798	67,086	58,424	36,980	17,956	4,160	200	14
1958	202,900	222	23,034	65,834	55,130	36,278	17,892	4,296	196	18
1959	198,576	200	21,922	65,426	53,434	34,934	18,030	4,424	198	8

TABLE 4.3 (continued)

YEAR	AGE OF MOTHER									
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1960	195,056	186	22,786	65,108	51,842	33,228	17,410	4,288	202	6
1961	192,825	212	23,891	64,336	50,277	32,456	17,067	4,363	203	20
1962	182,790	268	22,702	62,243	47,109	29,817	16,160	4,250	224	17
1963	178,871	210	21,686	62,834	46,063	28,364	15,117	4,359	229	9
1964	175,103	264	22,526	62,196	44,671	26,542	14,509	4,162	220	13
1965	166,464	267	24,653	59,439	40,693	23,767	13,528	3,886	211	20
1966	165,794	310	28,690	60,711	39,225	21,205	11,846	3,547	223	37
1967	162,756	316	27,267	61,541	40,052	19,840	10,479	3,059	178	24
1968	159,058	400	26,390	60,072	41,561	18,613	9,095	2,739	163	25
1969	165,760	421	28,061	63,376	44,615	18,535	8,157	2,433	134	28
1970	171,667	489	29,764	65,892	46,262	19,003	7,904	2,223	118	12
1971	162,244	472	28,480	62,367	43,639	18,258	6,975	1,926	113	14
1972	146,854	503	28,108	54,199	40,442	16,133	5,805	1,555	95	14
1973	141,550	569	27,808	51,284	39,845	15,520	5,163	1,277	62	22
1974	137,414	501	25,977	49,975	40,215	15,317	4,291	1,063	50	25
1975	133,931	463	24,509	48,675	40,061	14,891	4,273	982	54	23
1976	131,378	404	22,593	47,161	41,412	14,893	4,053	799	47	16
1977	138,416	426	22,585	49,740	43,346	17,293	4,178	771	51	26
1978	138,802	345	21,487	49,498	43,744	18,367	4,562	729	50	20
1979	144,452	355	21,239	51,319	46,084	19,962	4,720	715	41	17
1980	145,162	331	20.000	51,218	47,113	21,024	4,692	740	22	22
1981	140,579	300	18,397	47,737	46,527	22,178	4,701	695	34	10
1982	137,950	319	17,344	45,586	45,995	22,564	5,395	711	29	7

[1] -Total live births for the years 1920 through 1959 differ from figures in Table 4.1 as they are derived from outside sources. Live births by age of mother were not tabulated in Michigan prior to 1960. These data were obtained from the following sources:

1920-1923:	Unpublished tables from the National Center for Health Statistics.
1924-1932:	Bureau of the Census publication, *Birth, Stillbirth and Infant Mortality Statistics for Birth Registration Areas of the United States*.
1933-1936:	Unpublished tables from the National Center for Health Statistics.
1937-1949:	Bureau of the Census publication, *Vital Statistics of the United States* series.
1950-1959:	Department of Health Education and Welfare publication, *Vital Statistics of the United States* series.

TABLE 4.4
LIVE BIRTH RATES BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1982

(Live birth rates are per 1,000 women per year. Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1920	0.2	55.7	173.1	164.0	124.2	83.8	34.3	3.8	3,195.5
1921	0.2	56.9	167.3	165.5	125.8	84.8	32.8	3.6	3,184.5
1922	0.2	50.8	149.6	149.1	117.3	77.1	30.7	3.5	2,891.5
1923	0.2	52.6	152.6	147.5	116.5	75.4	29.3	3.8	2,889.5
1924	0.2	57.4	160.0	146.1	117.3	76.7	29.9	3.1	2,953.5
1925	0.3	57.4	155.9	145.4	115.2	73.9	28.8	3.5	2,902.0
1926	0.4	56.9	153.3	140.5	109.7	70.1	26.8	3.2	2,804.5
1927	0.3	56.0	153.3	136.8	108.9	68.1	27.0	2.9	2,766.5
1928	0.2	54.8	147.1	130.3	101.5	63.7	25.0	2.6	2,626.0
1929	0.2	55.7	151.5	130.6	93.6	59.6	23.9	2.4	2,587.5
1930	0.3	55.2	145.5	130.2	92.8	58.9	23.7	2.3	2,544.5
1931	0.3	47.8	130.4	118.3	85.3	54.3	21.5	2.3	2,301.0
1932	0.3	43.4	121.5	111.2	79.4	50.8	20.8	2.2	2,148.0
1933	0.2	39.7	111.6	105.2	75.0	47.7	20.0	1.9	2,006.5
1934	0.2	41.0	117.6	108.4	77.8	45.3	18.9	1.8	2,055.0
1935	0.2	43.9	126.2	109.4	77.4	45.5	18.5	2.0	2,115.5
1936	0.2	43.1	129.5	111.4	75.5	43.8	17.3	1.8	2,113.0
1937	0.2	45.9	136.4	113.9	75.9	42.3	15.8	1.6	2,160.0
1938	0.3	47.4	143.9	120.9	78.5	44.4	15.8	1.6	2,264.0
1939	0.2	44.1	135.6	119.6	79.2	42.3	14.0	1.3	2,181.5
1940	0.2	44.9	142.8	126.8	81.5	42.8	13.7	1.2	2,269.5
1941	0.2	48.1	157.8	137.1	81.6	42.5	13.2	1.2	2,408.5
1942	0.3	54.5	186.6	155.3	89.9	44.7	13.4	1.2	2,729.5
1943	0.3	51.6	175.1	159.0	97.1	48.6	14.1	1.1	2,734.5
1944	0.3	44.1	150.5	138.5	93.2	50.6	14.3	1.0	2,462.5
1945	0.3	40.8	135.5	133.4	98.5	52.1	15.4	1.3	2,386.5
1946	0.3	48.3	188.5	165.3	106.2	53.8	15.3	1.2	2,894.5
1947	0.4	69.7	227.3	184.2	108.4	53.6	15.4	1.0	3,300.0
1948	0.4	73.2	215.5	170.0	101.9	49.8	14.2	1.0	3,130.0
1949	0.5	74.6	214.0	171.4	102.5	49.6	14.1	1.0	3,138.5
1950	0.5	74.6	212.0	175.5	106.5	[illegible]2.3	13.6	0.9	3,179.5
1951	0.4	79.1	229.0	192.2	114.4	53.9	14.1	0.8	3,419.5
1952	0.5	73.5	233.0	202.5	121.7	56.1	14.4	1.1	3,514.0
1953	0.6	76.8	234.5	207.0	125.5	58.7	14.9	0.9	3,594.5
1954	0.7	82.8	246.8	214.1	133.1	61.8	15.6	1.1	3,780.0
1955	0.6	84.1	253.0	218.6	135.4	63.4	16.4	0.9	3,862.0
1956	0.6	87.2	272.4	228.9	138.0	65.0	17.4	0.8	4,051.5
1957	0.6	88.6	277.1	231.8	137.6	66.4	17.0	0.9	4,100.0
1958	0.6	83.6	273.4	221.5	134.3	65.0	17.2	0.9	3,982.5
1959	0.6	77.6	273.3	217.4	[illegible]8.6	64.4	17.3	0.9	3,900.5

TABLE 4.4 (continued)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1960	0.5	79.3	273.1	213.0	121.8	61.4	16.6	0.9	3,833.0
1961	0.6	78.1	252.0	200.7	120.2	61.3	16.8	0.9	3,653.0
1962	0.7	70.7	231.5	183.9	111.4	58.9	16.3	0.9	3,371.5
1963	0.5	64.6	222.5	175.9	107.0	55.9	16.6	0.9	3,219.5
1964	0.6	64.2	210.1	167.0	101.0	54.4	15.8	0.9	3,070.0
1965	0.6	67.4	192.0	149.0	91.2	51.5	14.7	0.8	2,836.0
1966	0.7	75.4	187.9	140.7	82.1	45.8	13.4	0.9	2,734.5
1967	0.7	69.0	182.8	140.8	77.6	41.2	11.5	0.7	2,621.5
1968	0.9	64.3	171.5	143.2	73.4	36.3	10.2	0.6	2,502.0
1969	0.9	66.0	174.2	150.8	73.8	33.1	9.1	0.5	2,542.0
1970	1.0	68.2	176.2	154.2	76.2	32.4	8.3	0.4	2,584.5
1971	1.0	64.7	161.7	138.6	69.1	27.9	7.2	0.4	2,353.0
1972	1.1	63.7	137.6	124.1	58.6	22.8	5.9	0.4	2,071.0
1973	1.2	62.8	127.5	118.3	54.2	19.9	4.9	0.2	1,945.0
1974	1.1	58.5	121.9	115.7	51.5	16.3	4.1	0.2	1,846.5
1975	1.1	55.3	117.0	112.3	48.4	16.0	3.9	0.2	1,771.0
1976	0.9	51.1	111.6	113.0	46.9	15.0	3.2	0.2	1,709.5
1977	1.0	50.9	115.5	114.9	52.6	15.2	3.1	0.2	1,767.0
1978	0.8	48.3	112.7	112.6	54.0	16.3	3.0	0.2	1,739.5
1979	0.9	47.6	114.6	115.2	56.7	16.6	3.0	0.2	1,774.0
1980	0.8	44.8	113.1	115.6	58.4	16.4	3.1	0.1	1,761.5
1981	0.8	42.7	105.4	112.1	58.0	15.9	2.9	0.2	1,690.0
1982	0.9	39.2	98.0	107.6	59.2	18.4	3.1	0.1	1,632.5

[1]-Number of live births to women aged 45 and over per 1,000 women 45-49 years of age.

SOURCE: Population figures used for 1920-1970 rates are from General Population Characteristics, Michigan, USBC, 1971, with arithmetic extrapolation between census years. For 1971-1982 population source, see Technical Notes.

TABLE 4.5
REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1982

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPOX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB[2] (ALL FORMS)	MENINGOCOCCAL[1] INFECTIONS	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	2,706	6,734	694	5,122	3,375	20,356		2,721	654				
1901	2,498	7,726	5,088	3,002	2,955	4,629		2,915	506				
1902	2,993	6,582	7,086	2,456	3,534	11,978		2,658	528				
1903	3,670	5,353	6,341	2,840	4,172	8,941		2,745	525				
1904	3,510	4,088	5,753	3,028	1,779	10,386		2,928	448				
1905	2,159	2,286	2,985	2,774	1,196	6,061		2,590	577				
1906	3,648	3,066	1,240	3,163	1,364	7,403		2,653	533				
1907	2,935	2,514	1,712	1,953	872	12,139		2,699	575				
1908	26,58	3,087	2,306	2,656	1,248	4,775		2,705	487				
1909	3,109	5,153	1,533	2,694	1,054	9,047		3,423	457				
1910	3,433	6,501	3,319	3,361	1,136	13,934		4,415	522	104			
1911	3,762	5,177	898	2,660	1,897	9,639		5,254	478	68			
1912	3,294	4,533	1,127	2,847	1,255	2,834		1,958	88	78			
1913	5,505	4,140	1,995	2,253	929	9,185		1,920	165	56			
1914	5,149	3,769	1,527	2,167	1,822	11,356		2,566	205	49			
1915	4,386	3,402	1,094	1,956	2,258	4,438		3,648	107	95			
1916	5,625	6,932	1,581	2,513	1,837	12,143		7,076	163	598			
1917	8,499	14,322	3,674	1,723	3,211	14,472		4,856	75	91			
1918	6,128	5,944	5,241	1,339	2,563	6,726		3,655	95	121			
1919	7,896	6,269	2,381	1,254	1,829	8,885		4,231	75	155	5,077	7,910	186
1920	10,360	10,280	4,818	1,421	7,171	22,364		4,994	203	67	8,117	11,463	262
1921	12,075	10,893	4,512	1,837	6,696	3,043		5,708	173	483	7,421	9,774	153
1922	8,513	9,687	1,230	1,108	5,642	12,107		5,573	159	43	7,900	9,717	90
1923	7,725	12,868	2,311	982	7,617	30,041		5,471	186	39	10,480	9,597	235
1924	6,011	12,989	4,527	782	4,364	18,290		5,570	157	647	13,000	10,490	183
1925	3,925	12,303	784	962	7,576	10,332		5,785	128	99	14,668	10,660	104
1926	5,377	12,681	549	583	8,776	39,946		5,387	96	107	14,872	10,707	103
1927	4,575	11,011	1,467	581	6,818	8,303		5,406	138	282	15,713	9,318	107
1928	3,724	10,486	1,335	390	9,700	27,039		5,885	276	77	15,323	8,592	100
1929	4,618	14,245	2,410	310	9,340	18,040		6,248	1,864	180	16,606	9,661	333
1930	3,206	11,174	2,375	504	7,937	28,129		5,128	901	208	16,538	8,554	163
1931	1,831	13,023	915	424	11,448	6,212		6,132	293	1,137	14,662	7,843	170
1932	1,188	15,255	222	513	13,091	42.129		7,103	129	112	11,969	6,963	140
1933	1,152	16,419	46	453	11,720	21,654		6,624	86	93	7,691	6,447	85
1934	614	19,238	49	486	11,255	6,528		5,264	53	230	6,483	6,188	132
1935	645	11,849	16	355	13,427	79,061		4,642	113	614	6,416	6,372	110
1936	661	12,650	32	287	14,287	2,453		5,157	120	152	6,401	6,460	133
1937	842	24,798	152	241	11,426	6,154		6,469	87	421	8,708	7,072	244
1938	619	18,362	274	285	14,563	79,400		6,335	69	59	14,684	7,046	341
1939	452	15,836	371	177	8,997	12,948		6,119	46	904	13,144	6,364	286
1940	264	10,366	76	120	11,757	20,206		6,063	49	1,228	9,999	7,650	218
1941	242	8,756	114	147	16,512	70,748		5,371	49	270	11,370	8,767	359
1942	243	7,503	17	74	11,602	8,569		5,720	66	162	12,461	8,753	276
1943	281	5,044	18	115	12,091	51,764		6,546	757	255	15,933	9,526	260

TABLE 4.5 (continued)

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPOX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB[2] (ALL FORMS)	MENINGOCOCCAL INFECTIONS[1]	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1944	419	8,963	10	78	4,049	26,711		6,419	857	884	17,288	11,987	185
1945	630	9,304	16	59	5,339	6,328	134	5,471	270	215	16,046	12,565	244
1946	385	5,977	3	85	8,116	42,261	34	5,548	185	1,091	18,051	12,635	206
1947	238	4,834	1	77	10,472	9,574	14	6,470	113	646	15,276	10,989	216
1948	126	5,934	-	49	2,668	42,952	9	6,109	107	775	12,100	9,448	465
1949	119	8,852	-	48	4,157	20,279	28	5,953	120	2,909	8,740	9,427	336
1950	84	4,665	-	43	9,184	38,245	48	5,538	133	2,029	8,830	8,678	202
1951	48	8,181	-	33	3,156	15,227	325	6,144	138	1,463	6,532	8,494	187
1952	45	8,325	-	53	1,992	32,941	283	6,152	169	3,912	7,377	7,691	58
1953	12	5,885	-	31	2,932	23,334	868	5,643	151	2,346	5,619	8,790	43
1954	57	5,142	-	30	5,620	40,725	1,419	5,764	150	2,168	4,686	9,940	47
1955	59	5,880	-	24	4,249	23,882	1,244	5,488	170	1,177	4,865	10,306	58
1956	220	7,349	-	56	1,907	41,966	814	5,515	182	656	4,785	9,598	52
1957	130	7,193	-	12	1,363	19,070	657	5,011	175	498	4,571	8,428	97
1958	6	5,380	-	18	1,233	41,448	688	5,587	228	1,228	4,267	8,621	178
1959	3	9,452	-	8	3,001	12,234	1,136	4,743	141	448	3,421	8,033	136
1960	9	9,287	-	14	1,129	36,161	2,113	4,127	169	88	3,647	8,372	112
1961	3	8,347	-	7	639	29,391	4,607	3,838	253	40	3,309	9,505	102
1962	4	8,116	-	12	1,756	25,303	3,280	3,474	139	21	4,331	11,654	75
1963	5	11,964	-	14	1,410	48,752	2,661	3,298	104	18	5,512	11,043	98
1964	1	17,228	-	13	957	30,897	2,472	3,047	80	3	5,220	12,028	106
1965	-	14,622	-	7	612	28,132	2,625	3,069	107	1	5,638	14,319	95
1966	1	13,862	-	7	653	15,251	2,589	3,259	135	1	5,842	15,424	114
1967	1	13,269	-	8	1,058	1,048	1,915	2,951	76	3	5,581	17,088	78
1968	-	10,101	-	1	429	353	2,356	2,618	94	3	5,351	18,153	105
1969	-	9,763	-	6	192	401	3,359	2,133	114	1	3,809	18,534	103
1970	-	11,863	-	14	195	1,834	4,594	1,992	69	2	3,920	20,359	118
1971	1	11,244	-	10	140	2,659	4,828	1,789	64	-	4,800	22,260	93
1972	1	13,304	-	7	116	2,353	4,322	1,632	55	1	4,891	24,750	175
1973	-	24,467	-	14	86	4,552	3,872	1,473	54	-	4,375	31,086	217
1974	-	31,802	-	11	104	2,365	3,599	1,431	54	2	2,722	32,067	171
1975	1	23,777	-	10	98	3,253	2,877	1,271	76	-	1,638	32,583	98
1976	-	24,937	-	10	70	6,139	2,645	1,349	65	1	1,089	34,836	37
1977	-	31,047	-	13	73	1,392	2,686	1,290	51	-	1,185	36,794	61
1978	-	29,759	-	15	47	8,006	2,174	1,260	87	1	1,133	36,647	49
1979	-	30,182	-	14	102	869	2,036	1,052	79	-	1,260	36,624	59
1980	1	24,808	-	12	38	250	1,799	1,168	77	1	1,163	34,951	50
1981	-	13,529	-	26	30	34	1,700	931	93	-	1,053	32,524	32
1982	-	12,302	-	14	34	64	1,745	864	81	-	921	32,848	26

[1] -Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2] -Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.6
CASE RATES OF CERTAIN REPORTED COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1982
(Rates per 100,000 population)

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB' (ALL FORMS)	MENINGOCOCCAL' INFECTIONS	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	111.8	278.2	28.7	211.6	139.4	840.8		112.4	27.0				
1901	101.5	314.1	206.8	122.0	120.1	188.2		118.5	20.6				
1902	119.8	263.4	283.6	98.3	141.4	479.3		106.4	21.1				
1903	144.6	210.9	249.9	111.9	164.4	352.3		108.2	20.7				
1904	136.2	158.7	223.3	117.5	69.0	403.1		113.6	17.4				
1905	82.5	87.4	114.1	106.1	45.7	231.7		99.0	22.1				
1906	137.4	115.5	46.7	118.2	51.4	278.9		99.9	20.1				
1907	109.0	93.3	63.6	72.5	32.4	450.7		100.2	21.3				
1908	97.3	113.0	84.4	97.2	45.7	174.8		99.0	17.8				
1909	112.2	185.9	55.3	97.2	38.0	326.5		123.5	16.5				
1910	122.2	231.3	118.1	119.6	40.4	495.8		157.1	18.6	3.7			
1911	129.9	178.8	31.0	91.8	65.5	332.8		181.4	16.5	2.3			
1912	110.5	152.0	37.8	95.5	42.1	95.0		65.7	3.0	2.6			
1913	179.5	135.0	65.0	73.4	30.3	299.4		62.6	5.4	1.8			
1914	163.3	119.5	48.4	68.7	57.8	360.1		81.4	6.5	1.6			
1915	135.4	105.0	33.8	60.4	69.7	137.0		112.6	3.3	2.9			
1916	169.2	208.5	47.5	75.6	55.2	365.2		212.8	4.9	18.0			
1917	249.2	419.9	107.7	50.5	94.1	424.3		142.4	2.2	2.7			
1918	175.2	170.0	149.9	38.3	73.3	192.4		104.5	2.7	3.5			
1919	220.4	175.0	66.5	35.0	51.1	248.0		118.1	2.1	4.3	141.7	220.8	5.2
1920	282.4	280.2	131.3	38.7	195.5	609.6		136.1	5.5	1.8	221.3	312.5	7.1
1921	318.9	287.7	119.2	48.5	176.9	80.4		150.8	4.6	12.8	196.0	258.2	4.0
1922	218.1	248.2	31.5	28.4	144.5	310.2		142.8	4.1	1.1	202.4	248.9	2.3
1923	192.1	320.1	57.5	24.4	189.5	747.2		136.1	4.6	1.0	260.7	238.7	5.8
1924	145.3	313.9	109.4	18.9	105.5	442.0		134.6	3.8	15.6	314.2	253.5	4.4
1925	92.2	289.1	18.4	22.6	178.0	242.8		135.9	3.0	2.3	344.7	250.5	2.4
1926	123.0	290.0	12.6	13.3	200.7	913.5		123.2	2.2	2.4	340.1	244.9	2.4
1927	101.9	245.2	32.7	12.9	151.8	184.9		120.4	3.1	6.3	349.9	207.5	2.4
1928	80.8	227.6	29.0	8.5	210.5	586.9		127.7	6.0	1.7	332.6	186.5	2.2
1929	97.7	301.5	51.0	6.6	197.7	381.8		132.2	39.4	3.8	351.4	204.5	7.0
1930	66.2	230.8	49.0	10.4	163.9	580.9		105.9	18.6	4.3	341.5	176.6	3.4
1931	37.5	266.7	18.7	8.7	234.4	127.2		125.6	6.0	23.3	300.2	160.6	3.5
1932	24.1	309.7	4.5	10.4	265.8	855.4		144.2	2.6	2.3	243.0	141.4	2.8
1933	23.2	330.6	0.9	9.1	236.0	436.0		133.4	1.7	1.9	154.9	129.8	1.7
1934	12.3	384.2	1.0	9.7	224.8	130.4		105.1	1.1	4.6	129.5	123.6	2.6
1935	12.8	234.7	0.3	7.0	265.9	1,565.8		91.9	2.2	12.2	127.1	126.2	2.2
1936	13.0	248.5	0.6	5.6	280.7	48.2		101.3	2.4	3.0	125.7	126.9	2.6
1937	16.4	483.2	3.0	4.7	222.6	119.9		126.1	1.7	8.2	169.7	137.8	4.8
1938	12.0	354.9	5.3	5.5	281.5	1,534.8		122.5	1.3	1.1	283.8	136.2	6.6
1939	8.7	303.7	7.1	3.4	172.5	248.3		117.3	0.9	17.3	252.0	122.0	5.5
1940	5.0	197.2	1.4	2.3	223.7	384.4		115.3	0.9	23.4	190.2	145.5	4.1
1941	4.5	161.0	2.1	2.7	303.7	1,301.1		98.8	0.9	5.0	209.1	161.2	6.6
1942	4.4	135.5	0.3	1.3	209.5	154.7		103.3	1.2	2.9	225.0	158.0	5.0

TABLE 4.6 (continued)

Year	DIP-THERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-PX	TYPHOID FEVER	WHOOP-ING COUGH	MEASLES	HEPATI-TIS, ALL TYPES	TB[2] (ALL FORMS)	MENIN-[1] GOCOC-CAL INFEC-TIONS	POLIO	SYPHI-LIS	GONOR-RHEA	CHAN-CROID
1943	5.2	93.8	0.3	2.1	224.8	962.6		121.7	14.1	4.7	296.3	177.1	4.8
1944	7.8	166.7	0.2	1.5	75.3	496.7		119.4	15.9	16.4	321.5	222.9	3.4
1945	11.6	171.2	0.3	1.1	98.2	116.4	2.5	100.7	5.0	4.0	295.2	231.2	4.5
1946	6.7	104.7	0.1	1.5	142.2	740.3	0.6	97.2	3.2	19.1	316.2	221.3	3.6
1947	3.9	79.6	0.0	1.3	172.5	157.8	0.2	106.6	1.9	10.6	251.7	181.1	3.6
1948	2.0	95.8	-	0.8	43.1	693.3	0.1	98.6	1.7	12.5	195.3	152.5	7.5
1949	1.9	139.4	-	0.8	65.4	319.3	0.4	93.7	1.9	45.8	137.6	148.4	5.3
1950	1.3	73.2	-	0.7	144.1	600.2	0.8	86.9	2.1	31.8	138.6	136.2	3.2
1951	0.7	125.0	-	0.5	48.2	232.7	5.0	93.9	2.1	22.4	99.8	129.8	2.9
1952	0.7	124.1	-	0.8	29.7	491.1	4.2	91.7	2.5	58.3	110.0	114.7	0.9
1953	0.2	85.9	-	0.5	42.8	340.5	12.7	82.4	2.2	34.2	82.0	128.3	0.6
1954	0.8	73.2	-	0.4	80.0	579.8	20.2	82.1	2.1	30.9	66.7	141.5	0.7
1955	0.8	81.3	-	0.3	58.7	330.0	17.2	75.8	2.3	16.3	67.2	142.4	0.8
1956	2.9	97.8	-	0.7	25.4	558.4	10.8	73.4	2.4	8.7	63.7	127.7	0.7
1957	1.7	92.2	-	0.2	17.5	244.4	8.4	64.2	2.2	6.4	58.6	108.0	1.2
1958	0.1	68.4	-	0.2	15.7	526.9	8.7	71.0	2.9	15.6	54.2	109.6	2.3
1959	0.0	118.7	-	0.1	37.7	153.7	14.3	59.6	1.8	5.6	43.0	100.9	1.7
1960	0.1	118.7	-	0.2	14.4	462.2	27.0	52.8	2.2	1.1	46.6	107.0	1.4
1961	0.0	105.6	-	0.1	8.1	371.9	58.3	48.6	3.2	0.5	41.9	120.3	1.3
1962	0.1	102.2	-	0.2	22.1	318.7	41.3	43.8	1.8	0.3	54.6	146.8	0.9
1963	0.1	149.0	-	0.2	17.6	607.1	33.1	41.1	1.3	0.2	68.6	137.5	1.2
1964	0.0	212.7	-	0.2	11.8	381.4	30.5	37.6	1.0	0.0	64.4	148.5	1.3
1965	-	178.3	-	0.1	7.5	343.1	32.0	37.4	1.3	0.0	68.8	174.6	1.2
1966	0.0	166.7	-	0.1	7.9	183.4	31.1	39.2	1.6	0.0	70.3	185.5	1.4
1967	0.0	154.0	-	0.1	12.3	12.2	22.2	34.2	0.9	0.0	64.8	198.4	0.9
1968	-	116.4	-	0.0	4.9	4.1	27.2	30.2	1.1	0.0	61.7	209.3	1.2
1969	-	111.8	-	0.1	2.2	4.6	38.5	24.4	1.3	0.0	43.6	212.2	1.2
1970	-	133.7	-	0.2	2.2	20.7	51.8	22.4	0.8	0.0	44.2	229.4	1.3
1971	0.0	125.3	-	0.1	1.6	29.6	53.8	19.9	0.7	-	53.5	248.1	1.0
1972	0.0	147.4	-	0.1	1.3	26.1	47.9	18.1	0.6	0.0	54.2	274.2	1.9
1973	-	269.7	-	0.2	0.9	50.2	42.7	16.2	0.6	-	48.2	342.7	2.4
1974	-	349.1	-	0.1	1.1	26.0	39.5	15.7	0.6	0.0	29.9	352.0	1.9
1975	0.0	261.1	-	0.1	1.1	35.7	31.6	14.0	0.8	-	18.0	357.7	1.1
1976	-	273.5	-	0.1	0.8	67.3	29.0	14.8	0.7	0.0	11.9	382.1	0.4
1977	-	339.1	-	0.1	0.8	15.2	29.3	14.1	0.6	-	12.9	401.8	0.7
1978	-	323.4	-	0.2	0.5	87.0	23.6	13.7	0.9	0.0	12.3	398.3	0.5
1979	-	326.3	-	0.2	1.1	9.4	22.0	11.4	0.9	-	13.6	396.0	0.6
1980	0.0	267.8	-	0.1	0.4	2.7	19.4	12.6	0.8	0.0	12.6	377.4	0.5
1981	-	145.9	-	0.3	0.3	0.4	18.3	10.0	1.0	-	11.4	350.9	0.3
1982	-	133.3	-	0.2	0.4	0.7	18.9	9.4	0.9	-	10.0	356.0	0.3

[1]-Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2]-Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.7
NUMBER OF DEATHS AND DEATH RATES FOR CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1982
(Rates per 100,000 population)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis' (all forms)		Polio-myelitis		Syphilis'		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rata	No.	Rate	No.	Rate
1900	529	21.9	272	11.2	9	0.4	869	35.9	208	8.6	342	14.1	2,018	83.4	2,500	103.3						
1901	502	20.4	312	12.7	27	1.1	645	26.2	163	6.6	79	3.2	2,152	87.5	2,548	103.6			88	3.6		
1902	504	20.2	277	11.1	42	1.7	608	24.3	289	11.6	238	9.5	2,088	83.6	2,462	98.5			114	4.6		
1903	686	27.0	200	7.9	29	1.1	606	23.9	383	15.1	176	6.9	2,155	84.9	2,562	101.0			130	5.2		
1904	515	20.0	210	8.1	26	1.0	641	24.9	148	5.7	194	7.5	2,306	89.5	2,761	107.2			101	4.0		
1905	478	18.3	123	4.7	74	2.8	636	24.3	131	5.0	123	4.7	2,288	87.5	2,732	104.5			89	3.5		
1906	472	17.8	227	8.6	3	0.1	721	27.2	469	17.7	251	9.5	2,303	86.8	2,737	103.1			89	3.4		
1907	421	15.6	159	5.9	8	0.3	594	22.1	223	8.3	256	9.5	2,338	86.8	2,728	101.3			94	3.6		
1908	343	12.6	194	7.1	11	0.4	687	25.1	305	11.2	121	4.4	2,249	82.3	2,706	99.0			118	4.5		
1909	395	14.3	275	9.9	4	0.1	653	23.6	217	7.8	270	9.7	2,237	80.7	2,629	94.9			127	4.8		
1910	495	17.6	297	10.6	121	4.3	654	23.3	318	11.3	251	8.9	2,273	80.9	2,756	98.1	52	1.9	65	2.3		
1911	473	16.3	208	7.2	7	0.2	551	19.0	254	8.8	200	6.9	2,284	78.9	2,766	95.5	55	1.9	104	3.6		
1912	465	15.6	186	6.2	3	0.1	534	17.9	252	8.5	118	4.0	2,289	76.8	2,744	92.0	48	1.7	90	3.1		
1913	676	22.0	283	9.2	5	0.2	538	17.5	292	9.5	258	8.4	2,243	73.1	2,703	88.1	43	1.5	136	4.6		
1914	507	16.1	177	5.6	2	0.1	400	12.7	304	9.6	180	5.7	2,325	73.7	2,799	88.8	41	1.4	160	5.3		
1915	354	10.9	107	3.3	5	0.2	353	10.9	236	7.3	101	3.1	2,527	78.0	2,986	92.2	36	1.2	163	5.3		
1916	507	15.2	177	5.3	2	0.1	424	12.8	228	6.9	363	10.9	2,573	77.4	3,070	92.3	141	4.6	206	6.7		
1917	851	24.9	340	10.0	9	0.3	386	11.3	360	10.6	259	7.6	2,779	81.5	3,310	97.0	44	1.4	224	7.1		
1918	686	19.6	181	5.2	18	0.5	337	9.6	496	14.2	270	7.7	3,059	87.5	3,612	103.3	58	1.8	290	9.1		
1919	764	21.3	179	5.0	10	0.3	272	7.6	172	4.8	183	5.1	2,620	73.1	3,127	87.3	80	2.2	299	8.2		
1920	888	24.2	305	8.3	14	0.4	297	8.1	511	13.9	436	11.9	2,645	72.1	3,149	85.8	30	0.8	314	8.4		
1921	954	25.2	334	8.8	12	0.3	285	7.5	316	8.3	58	1.5	2,285	60.4	2,736	72.3	100	2.6	226	5.9	14	0.4
1922	620	15.9	217	5.6	20	0.5	192	4.9	232	5.9	232	5.9	2,232	57.2	2,654	68.0	21	0.5	186	4.7	6	0.2
1923	675	16.8	304	7.6	13	0.3	202	5.0	323	8.0	258	6.4	2,410	59.9	2,837	70.6	18	0.5	262	6.8	5	0.1
1924	470	11.4	265	6.4	226	5.5	149	3.6	169	4.1	221	5.3	2,474	59.8	2,952	71.3	116	3.0	271	7.0	13	0.3
1925	358	8.4	208	4.9	22	0.5	157	3.7	260	6.1	69	1.6	2,410	56.6	2,830	66.5	31	0.7	282	6.6	27	0.6
1926	677	15.5	235	5.4	4	0.1	119	2.7	355	8.1	577	13.2	2,601	59.5	3,041	69.5	34	0.8	327	7.5	12	0.3
1927	516	11.5	168	3.7	-	-	94	2.1	201	4.5	67	1.5	2,514	56.0	2,952	65.7	69	1.5	305	6.8	16	0.4
1928	384	8.3	178	3.9	2	0.0	83	1.8	219	4.8	303	6.6	2,647	57.4	3,108	67.5	27	0.6	384	8.4	19	0.4
1929	498	10.5	145	3.1	9	0.2	81	1.7	255	5.4	146	3.1	2,685	56.8	3,140	66.5	50	1.1	397	8.4	19	0.4
1930	299	6.2	130	2.7	9	0.2	87	1.8	176	3.6	231	4.8	2,443	50.5	2,912	60.1	39	0.8	395	8.2	12	0.2
1931	172	3.5	122	2.5	4	0.1	73	1.5	190	3.9	28	0.6	2,263	46.3	2,660	54.5	108	2.2	361	7.4	3	0.1
1932	106	2.2	112	2.3	1	0.0	56	1.1	199	4.0	183	3.7	2,101	42.7	2,463	50.0	23	0.5	377	7.7	2	0.0
1933	112	2.3	157	3.2	-	-	50	1.0	153	3.1	111	2.2	1,996	40.2	2,348	47.3	5	0.1	327	6.6	7	0.1
1934	38	0.8	171	3.4	-	-	65	1.3	141	2.8	36	0.7	1,909	38.1	2,199	43.9	25	0.5	402	8.0	10	0.2
1935	58	1.1	98	1.9	-	-	34	0.7	132	2.6	184	3.6	1,741	34.5	2,044	40.5	32	0.6	393	7.8	3	0.1
1936	52	1.0	114	2.2	-	-	37	0.7	107	2.1	12	0.2	1,816	35.7	2,100	41.3	21	0.4	394	7.7	6	0.1
1937	72	1.4	148	2.9	1	0.0	29	0.6	132	2.6	11	0.2	1,860	36.2	2,119	41.3	51	1.0	401	7.8	8	0.2
1938	44	0.9	87	1.7	-	-	23	0.4	116	2.2	100	1.9	1,633	31.6	1,866	36.1	10	0.2	401	7.8	8	0.2
1939	25	0.5	69	1.3	-	-	25	0.5	76	1.5	29	0.6	1,651	31.7	1,881	36.1	40	0.8	389	7.5	4	0.1
1940	20	0.4	41	0.8	1	0.0	11	0.2	59	1.1	19	0.4	1,547	29.4	1,752	33.3	72	1.4	591	11.2	3	0.0
1941	18	0.3	32	0.6	1	0.0	14	0.3	91	1.7	65	1.2	1,532	28.2	1,723	31.7	18	0.3	537	9.9	1	0.0
42	24	0.4	23	0.4	-	-	5	0.1	72	1.3	8	[illegible]	1,630	29.4	1,827	33.0	10	0.2	559	10.1	7	0.1

Table 4.7 (continued)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis[2] (all forms)		Polio-myelitis		Syphilis[1]		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1943	21	0.4	11	0.2	-	-	9	0.2	101	1.9	89	1.7	1,588	29.5	1,802	33.5	27	0.5	579	10.8	3	0.0
1944	32	0.6	7	0.1	1	0.0	7	0.1	33	0.6	49	0.9	1,544	28.7	1,748	32.5	45	0.8	543	10.1	2	0.0
1945	46	0.8	9	0.2	-	-	3	0.1	36	0.7	10	0.2	1,591	29.3	1,758	32.3	20	0.4	527	9.7	2	0.0
1946	27	0.5	3	0.1	-	-	6	0.1	44	0.8	47	0.8	1,645	28.8	1,843	32.3	89	1.6	547	9.6	-	-
1947	23	0.4	6	0.1	-	-	5	0.1	63	1.0	5	0.1	1,483	24.4	1,643	27.1	29	0.5	502	8.3	3	0.0
1948	8	0.1	1	0.0	-	-	4	0.1	9	0.1	43	0.7	1,395	22.5	1,561	25.2	54	0.9	512	8.3	-	-
1949	11	0.2	4	0.1	-	-	1	0.0	22	0.3	33	0.5	1,254	19.7	1,400	22.0	216	3.4	455	7.2	-	-
1950	2	0.0	1	0.0	-	-	5	0.1	28	0.4	28	0.4	1,134	17.8	1,270	19.9	128	2.0	325	5.1	1	0.0
1951	6	0.1	-	-	-	-	1	0.0	21	0.3	11	0.2	1,049	16.0	1,154	17.6	67	1.0	299	4.6	1	0.0
1952	2	0.0	-	-	-	-	-	-	8	0.1	17	0.3	689	10.3	775	11.6	213	3.2	174	2.6	2	0.0
1953	2	0.0	1	0.0	-	-	-	-	11	0.2	16	0.2	536	7.8	607	8.9	108	1.6	182	2.7	1	0.0
1954	3	0.0	3	0.0	-	-	-	-	17	0.2	17	0.2	471	6.7	530	7.5	89	1.3	139	2.0	2	0.0
1955	1	0.0	1	0.0	-	-	1	0.0	8	0.1	10	0.1	435	6.0	477	6.6	32	0.4	115	1.6	1	0.0
1956	6	0.1	3	0.0	-	-	-	-	6	0.1	26	0.3	426	5.7	466	6.2	22	0.3	114	1.5	4	0.1
1957	1	0.0	-	-	-	-	-	-	6	0.1	23	0.3	403	5.2	442	5.7	15	0.2	105	1.3	4	0.1
1958	-	-	-	-	-	-	-	-	1	0.0	18	0.2	357	4.5	395	5.0	37	0.5	84	1.1	8	0.1
1959	1	0.0	2	0.0	-	-	1	0.0	5	0.1	11	0.1	335	4.2	370	4.6	17	0.2	84	1.1	4	0.1
1960	2	0.0	1	0.0	-	-	-	-	1	0.0	17	0.2	364	4.7	390	5.0	4	0.1	79	1.0	7	0.1
1961	1	0.0	1	0.0	-	-	-	-	2	0.0	13	0.2	307	3.9	332	4.2	-	-	71	0.9	7	0.1
1962	2	0.0	1	0.0	-	-	-	-	2	0.0	8	0.1	307	3.9	331	4.2	2	0.0	94	1.2	3	0.0
1963	-	-	-	-	-	-	-	-	-	-	27	0.3	276	3.4	299	3.7	1	0.0	72	0.9	1	0.0
1964	-	-	-	-	-	-	-	-	2	0.0	11	0.1	288	3.6	315	3.9	1	0.0	66	0.8	3	0.0
1965	-	-	-	-	-	-	-	-	-	-	5	0.1	261	3.2	285	3.5	-	-	65	0.8	2	0.0
1966	1	0.0	-	-	-	-	-	-	-	-	7	0.1	284	3.4	301	3.6	-	-	63	0.8	-	-
1967	-	-	-	-	-	-	-	-	-	-	3	0.0	206	2.4	226	2.6	-	-	44	0.5	1	0.0
1968	-	-	1	0.0	-	-	-	-	-	-	-	-	203	2.3	262	3.0	2	0.0	29	0.3	-	-
1969	-	-	-	-	-	-	-	-	-	-	-	-	147	1.7	201	2.3	-	-	26	0.3	1	0.0
1970	-	-	2	0.0	-	-	-	-	-	-	1	0.0	134	1.5	180	2.0	-	-	17	0.2	2	0.0
1971	-	-	4	0.0	-	-	-	-	-	-	-	-	122	1.4	173	1.9	-	-	18	0.2	-	-
1972	-	-	1	0.0	-	-	1	0.0	-	-	-	-	111	1.2	157	1.7	1	0.0	12	0.1	-	-
1973	-	-	-	-	-	-	-	-	1	0.0	2	0.0	101	1.1	138	1.5	3	0.0	12	0.1	-	-
1974	-	-	1	0.0	-	-	-	-	2	0.0	-	-	109	1.2	142	1.6	3	0.0	11	0.1	-	-
1975	-	-	-	-	-	-	-	-	1	0.0	1	0.0	81	0.9	110	1.2	5	0.1	10	0.1	1	0.0
1976	-	-	-	-	-	-	-	-	-	-	-	-	80	0.9	102	1.1	6	0.1	11	0.1	-	-
1977	-	-	1	0.0	-	-	-	-	-	-	-	-	67	0.7	97	1.1	6	0.1	3	0.0	-	-
1978	-	-	-	-	-	-	-	-	1	0.0	1	0.0	60	0.7	80	0.9	2	0.0	5	0.1	-	-
1979	-	-	-	-	-	-	-	-	-	-	-	-	47	0.5	62	0.7	2	0.0	9	0.1	-	-
1980	-	-	-	-	-	-	-	-	-	-	-	-	51	0.6	61	0.7	-	-	1	0.0	1	0.0
1981	-	-	-	-	-	-	1	0.0	-	-	-	-	41	0.4	53	0.6	-	-	4	0.0	1	0.0
1982	-	-	-	-	-	-	-	-	-	-	1	0.0	30	0.3	41	0.4	-	-	-	-	-	-

[1] -From 1901 through 1920, syphilis includes all other venereal diseases, beginning with 1968 excludes aortic aneurysms not specified as syphilitic.

[2] -Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, deaths and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

TABLE 4.8
NUMBER OF DEATHS AND DEATH RATES BY SPECIFIED CAUSES
MICHIGAN RESIDENTS, 1900-1982
(Rates per 100,000 population)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	2,836	117.1	1,460	60.3	2,136	88.2	1,740	71.9			224	9.3	2,388	98.6				
1901	3,040	123.6	1,484	60.3	2,147	87.3	1,901	77.3			264	10.7	2,901	117.9				
1902	3,302	132.1	1,483	59.3	2,097	83.9	1,796	71.9			289	11.6	2,637	105.5				
1903	3,702	145.9	1,694	66.8	2,321	91.5	2,017	79.5			265	10.4	2,607	102.7				
1904	3,981	154.5	1,728	67.1	2,431	94.3	2,035	79.0			298	11.6	2,646	102.7				
1905	3,715	142.0	1,693	64.7	2,405	91.9	2,034	77.8			267	10.2	2,417	92.4				
1906	3,933	148.2	1,736	65.4	2,554	96.2	2,126	80.1			311	11.7	2,621	98.7				
1907	4,269	158.5	1,747	64.9	2,690	99.9	2,209	82.0			352	13.1	3,018	112.0				
1908	4,202	153.8	1,921	70.3	2,630	96.3	2,036	74.5			359	13.1	2,313	84.7				
1909	4,354	157.1	1,948	70.3	2,739	98.8	1,903	68.7			374	13.5	2,265	81.7				
1910	4,581	163.0	2,105	74.9	3,091	110.0	2,158	76.8	49	1.7	398	14.2	2,785	99.1	282	10.0		
1911	4,639	160.2	2,142	74.0	2,916	100.7	2,121	73.2	44	1.5	373	12.9	2,763	95.4				
1912	5,324	178.5	2,291	76.8	2,707	90.8	2,005	67.2	75	2.5	448	15.0	2,796	93.8				
1913	4,908	160.0	2,388	77.8	2,834	92.4	2,333	76.1	132	4.3	483	15.7	3,082	100.5				
1914	5,124	162.5	2,414	76.6	2,993	94.9	2,108	66.8	120	3.8	503	16.0	2,909	92.2				
1915	5,538	171.0	2,567	79.2	3,384	104.5	2,219	68.5	190	5.9	498	15.4	3,229	99.7				
1916	5,819	175.0	2,710	81.5	3,559	107.0	2,853	85.8	257	7.7	500	15.0	3,698	111.2				
1917	6,103	178.9	2,765	81.1	3,703	108.6	2,925	85.8	335	9.8	569	16.7	4,455	130.6				
1918	6,091	174.2	2,931	83.8	3,493	99.9	2,599	74.3	279	8.0	591	16.9	7,238	207.0				
1919	5,651	157.7	2,990	83.5	3,483	97.2	2,612	72.9	328	9.2	559	15.6	4,081	113.9				
1920	6,732	183.5	3,158	86.1	3,876	105.7	2,646	72.1	397	10.8	577	15.7	5,794	157.9				
1921	6,176	163.1	3,373	89.1	3,931	103.8	2,476	65.4	403	10.6	586	15.5	2,849	75.3	261	6.9		
1922	6,897	176.7	3,481	89.2	4,041	103.5	2,475	63.4	529	13.6	650	16.7	3,728	95.5	267	6.8		
1923	7,266	180.7	3,545	88.2	4,420	109.9	2,826	70.3	677	16.8	635	15.8	4,719	117.4	251	6.2		
1924	6,985	168.8	3,824	92.4	4,241	102.5	3,090	74.7	1,001	24.2	661	16.0	3,332	80.5	256	6.2		
1925	7,540	177.2	3,858	90.7	4,623	108.6	3,278	77.0	1,103	25.9	746	17.5	3,294	77.4	319	7.5		
1926	8,281	189.4	4,087	93.5	4,663	106.6	3,557	81.3	1,221	27.9	743	17.0	4,440	101.5	326	7.5		
1927	8,780	195.5	4,264	95.0	4,378	97.5	3,634	80.9	1,389	30.9	819	18.2	3,543	78.9	340	7.6		
1928	9,786	212.4	4,381	95.1	4,718	102.4	3,704	80.4	1,429	31.0	905	19.6	4,518	98.1	373	8.1		
1929	10,185	215.6	4,571	96.7	4,694	99.3	3,913	82.8	1,552	32.8	935	19.8	4,216	89.2	361	7.6		
1930	9,947	205.4	4,572	94.4	4,533	93.6	3,805	78.6	1,572	32.5	880	18.2	3,321	68.6	329	6.8	1,047	21.6
1931	10,206	209.0	4,763	97.5	4,388	89.8	3,630	74.3	1,516	31.0	950	19.5	2,883	59.0	365	7.5	1,005	20.6
1932	11,162	226.6	4,935	100.2	4,518	91.7	3,179	64.5	1,229	25.0	1,121	22.8	3,238	65.7	386	7.8	948	19.2
1933	11,509	231.7	5,055	101.8	4,318	86.9	3,304	66.5	1,278	25.7	1,103	22.2	2,756	55.5	354	7.1	966	19.5
1934	11,824	236.1	5,370	107.2	4,485	89.6	3,774	75.4	1,511	30.2	1,100	22.0	3,466	69.2	378	7.5	914	18.3
1935	12,456	246.7	5,399	106.9	4,420	87.5	3,771	74.7	1,676	33.2	1,228	24.3	3,801	75.3	368	7.3	897	17.8
1936	13,374	262.7	5,752	113.0	4,705	92.4	5,246	103.1	1,924	37.8	1,266	24.9	4,096	80.5	446	8.8	997	19.6
1937	13,233	257.8	5,732	111.7	4,378	85.3	4,580	89.2	2,187	42.6	1,255	24.5	4,098	79.8	430	8.4	1,168	22.8
1938	13,887	268.4	6,059	117.1	4,543	87.8	3,608	69.7	1,490	28.8	1,283	24.8	2,869	55.5	424	8.2	869	16.8
1939	14,898	285.7	6,296	120.7	4,415	84.7	3,761	72.1	1,553	29.8	1,360	26.1	2,803	53.8	387	7.4	918	17.6
1940	15,480	294.5	6,513	123.9	4,690	89.2	3,961	75.4	1,743	33.2	1,408	26.8	2,478	47.1	468	8.9	941	17.9
1941	15,761	289.8	6,551	120.5	4,698	86.4	4,450	81.8	2,156	39.6	1,382	25.4	2,235	41.1	450	8.3	906	16.7
1942	16,016	289.2	6,646	120.0	4,841	87.4	3,685	66.5	1,368	24.7	1,448	26.1	2,349	42.4	535	9.7	1,015	18.3
1943	17,816	331.3	7,127	132.5	5,311	98.8	3,480	64.7	1,025	19.1	1,535	28.5	2,931	54.5	518	9.6	1,092	20.3

Table 4.8 (continued)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1944	17,004	316.2	7,277	135.3	4,954	92.1	3,350	62.3	1,103	20.5	1,554	28.9	2,369	44.1	471	8.8	980	18.2
1945	17,421	320.5	7,486	137.7	5,295	97.4	3,432	63.1	1,199	22.1	1,561	28.7	1,932	35.5	535	9.8	970	17.8
1946	17,691	309.9	7,845	137.4	5,224	91.5	3,776	66.1	1,506	26.4	1,530	26.8	1,891	33.1	554	9.7	933	16.3
1947	18,412	303.4	8,188	134.9	5,426	89.4	3,848	63.4	1,499	24.7	1,618	26.7	2,089	34.4	697	11.5	1,031	17.0
1948	18,726	302.3	8,336	134.6	5,272	85.1	4,017	64.8	1,545	24.9	1,771	28.6	1,853	29.9	771	12.4	1,085	17.5
1949	19,137	301.3	8,697	136.9	5,438	85.6	3,838	60.4	1,493	23.5	1,884	29.7	1,885	29.7	730	11.5	1,135	17.9
1950	20,521	322.1	8,685	136.3	6,376	100.1	3,783	59.4	1,680	26.4	1,438	22.6	1,358	21.3	616	9.7	1,296	20.3
1951	21,118	322.6	9,187	140.4	6,579	100.5	3,916	59.8	1,806	27.6	1,374	21.0	1,619	24.7	569	8.7	1,312	20.0
1952	21,247	316.8	9,256	138.0	6,521	97.2	3,901	58.2	1,815	27.1	1,339	20.0	1,571	23.4	599	8.9	1,294	19.3
1953	22,425	327.3	9,904	144.5	7,045	102.8	4,375	63.8	2,051	29.9	1,419	20.7	1,538	22.4	715	10.4	1,270	18.5
1954	22,362	318.4	10,105	143.9	6,964	99.1	3,948	56.2	1,916	27.3	1,469	20.9	1,380	19.6	677	9.6	1,170	16.7
1955	23,440	323.9	10,297	142.3	7,362	101.7	4,213	58.2	2,129	29.4	1,415	19.6	1,538	21.3	805	11.1	1,237	17.1
1956	24,661	328.1	10,489	139.6	7,114	94.7	3,925	52.2	1,826	24.3	1,443	19.2	1,723	22.9	788	10.5	1,251	16.6
1957	25,369	325.1	10,810	138.5	7,632	97.8	3,643	46.7	1,680	21.5	1,510	19.4	2,045	26.2	861	11.0	1,248	16.0
1958	25,215	320.6	10,946	139.2	7,547	95.9	3,306	42.0	1,466	18.6	1,595	20.3	2,076	26.4	818	10.4	1,300	16.5
1959	25,323	318.1	11,113	139.6	7,700	96.7	3,666	46.1	1,587	19.9	1,715	21.5	1,810	22.7	815	10.2	1,403	17.6
1960	25,728	328.9	11,331	144.8	7,682	98.2	3,688	47.1	1,710	21.9	1,784	22.8	2,002	25.6	840	10.7	1,352	17.3
1961	25,519	322.9	11,476	145.2	7,745	98.0	3,692	46.7	1,656	21.0	1,778	22.5	1,692	21.4	858	10.9	1,448	18.3
1962	27,226	342.9	11,752	148.0	7,783	98.0	3,758	47.3	1,668	21.0	1,908	24.0	1,824	23.0	859	10.8	1,477	18.6
1963	27,483	342.3	12,078	150.4	8,168	101.7	4,033	50.2	2,005	25.0	2,049	25.5	1,995	24.8	958	11.9	1,652	20.6
1964	27,496	339.5	12,087	149.2	7,940	98.0	4,416	54.5	2,286	28.2	2,055	25.4	1,714	21.2	995	12.3	1,559	19.2
1965	28,134	343.1	12,419	151.5	7,769	94.8	4,494	54.8	2,271	27.7	2,153	26.3	1,987	24.2	1,068	13.0	1,726	21.1
1966	28,277	340.1	12,506	150.4	7,732	93.0	4,737	57.0	2,407	29.0	2,243	27.0	2,026	24.4	1,152	13.9	1,745	21.0
1967	28,757	333.8	13,030	151.2	7,846	91.1	4,519	52.4	2,265	26.3	2,182	25.3	1,973	22.9	1,240	14.4	1,730	20.1
1968	29,680	342.1	13,292	153.2	7,913	91.2	4,603	53.1	2,466	28.4	2,298	26.5	2,341	27.0	1,259	14.5	1,262	14.5
1969	29,396	336.6	13,328	152.6	7,706	88.2	4,766	54.6	2,579	29.5	2,188	25.1	2,229	25.5	1,430	16.4	1,289	14.8
1970	29,204	329.1	13,551	152.7	7,691	86.7	4,428	49.9	2,309	26.0	2,180	24.6	2,004	22.6	1,558	17.6	1,174	13.2
1971	30,095	335.4	13,594	151.5	7,826	87.2	4,426	49.3	2,274	25.3	2,103	23.4	1,981	22.1	1,657	18.5	1,187	13.2
1972	30,865	342.0	14,045	155.6	7,999	88.6	4,566	50.6	2,450	27.1	2,222	24.6	2,009	22.3	1,778	19.7	1,153	12.8
1973	29,944	330.1	14,220	156.7	7,987	88.0	4,630	51.0	2,389	26.3	2,074	22.9	1,958	21.6	1,711	18.9	1,142	12.6
1974	29,220	320.8	14,241	156.3	7,645	83.9	4,211	46.2	1,929	21.2	1,940	21.3	1,637	18.0	1,650	18.1	1,187	13.0
1975	28,298	310.7	14,445	158.6	7,262	79.7	4,002	43.9	1,841	20.2	1,819	20.0	1,690	18.6	1,574	17.3	1,119	12.3
1976	29,233	320.6	14,880	163.2	7,354	80.7	3,912	42.9	1,993	21.9	1,719	18.9	1,812	19.9	1,486	16.3	1,207	13.2
1977	28,895	315.6	15,125	165.2	6,818	74.5	3,945	43.1	1,993	21.8	1,615	17.6	1,639	17.9	1,356	14.8	1,164	12.7
1978	29,406	319.6	15,249	165.7	6,520	70.9	3,970	43.1	2,138	23.2	1,551	16.9	1,828	19.9	1,351	14.7	1,146	12.5
1979	29,296	316.7	15,409	166.6	6,067	65.6	3,839	41.5	1,967	21.3	1,449	15.7	1,454	15.7	1,367	14.8	1,173	12.7
1980	29,790	321.6	15,828	170.9	6,164	66.6	3,627	39.2	1,880	20.3	1,467	15.8	1,712	18.5	1,362	14.7	1,254	13.5
1981	30,172	325.5	16,142	174.1	6,121	66.0	3,390	36.6	1,727	18.6	1,487	16.0	1,644	17.7	1,253	13.5	1,270	13.7
1982	30,099	326.2	16,566	179.5	5,839	63.3	3,113	33.7	1,555	16.9	1,347	14.6	1,665	18.0	1,244	13.5	1,284	13.9

[1] -Cancer includes leukemias, aleukemias, and Hodgkin's disease beginning with 1921.

[2] -Cerebrovascular disease was called Vascular Lesions Affecting-Central Nervous System prior to 1968.

[3] -Accidents exclude injuries undetermined whether accidentally or purposely inflicted since 1968.

[4] -Motor vehicle accidents do not include collision with heavier vehicles from 1910 through 1922. Motorcycle accidents are included beginning 1923.

[5] -Chronic liver disease and cirrhosis was called cirrhosis of the liver prior to 1979.

[6] -Atherosclerosis was called General Arteriosclerosis prior to 1968 and was called Arteriosclerosis from 1968-1978.

Table 4.9
Selected Vital Statistics By County, Michigan Residents, 1982

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Michigan	9227327	137950	9572	75536	1672	1202	1988	953	82633	39739
Alcona	9923	107	5	112	1	1	3	2	83	43
Alger	9018	127	5	99	-	-	1	1	78	36
Allegan	83706	1333	70	644	14	8	13	6	696	350
Alpena	32341	471	22	303	5	4	5	1	342	129
Antrim	16830	272	15	186	2	2	4	2	139	72
Arenac	15225	241	13	157	2	2	3	2	135	28
Baraga	8606	119	7	100	1	1	2	1	73	54
Barry	46569	672	36	374	7	4	8	5	349	155
Bay	119642	1816	108	961	14	13	26	15	1091	518
Benzie	11005	166	8	122	2	2	4	3	116	23
Berrien	167354	2496	202	1463	37	21	32	18	1782	850
Branch	39747	650	40	342	7	4	4	1	411	214
Calhoun	141826	2123	149	1268	22	12	19	10	1318	758
Cass	48237	625	39	384	12	5	11	6	387	264
Charlevoix	19658	337	16	186	3	3	6	3	214	94
Cheboygan	20993	317	17	246	1	-	2	2	202	101
Chippewa	29575	384	15	279	1	1	3	2	313	105
Clare	24206	360	33	277	3	1	5	4	239	102
Clinton	55364	865	43	314	5	3	8	5	456	203
Crawford	9545	168	10	86	1	1	3	2	118	46
Delta	39693	625	33	373	8	8	9	6	377	141
Dickinson	25511	362	21	281	5	5	8	3	260	197
Eaton	88870	1196	62	584	13	8	14	8	812	334
Emmet	23837	333	19	202	5	5	5	1	289	127
Genesee	446610	7019	538	3330	81	51	76	36	4260	2281
Gladwin	20535	300	12	200	1	-	2	2	173	39
Gogebic	19613	232	12	283	2	1	2	1	182	54
Gd. Traverse	56607	895	36	438	14	9	15	7	714	314
Gratiot	39836	620	42	400	9	7	15	8	365	183
Hillsdale	41581	634	38	366	6	5	7	3	365	210
Houghton	38366	529	25	456	3	3	5	2	271	114
Huron	36554	570	23	362	4	2	6	4	310	127
Ingham	275046	4372	310	1614	46	30	64	36	2949	1354
Ionia	52412	951	49	398	10	8	11	6	516	232
Iosco	30089	594	24	278	5	2	7	6	283	123
Iron	13480	159	6	172	-	-	1	1	121	44
Isabella	54547	698	49	327	6	5	7	2	467	186
Jackson	149790	2146	139	1254	34	27	32	12	1537	694
Kalamazoo	217609	3223	196	1459	47	40	55	26	2283	1048
Kalkaska	11348	221	24	99	1	-	1	1	116	101
Kent	455827	8335	483	3376	85	60	98	46	4974	2320

Selected Vital Statistics By County, Michigan Residents, 1982 (continued)

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Keweenaw	2022	22	3	49	-	-	-	-	32	4
Lake	8335	109	7	120	1	1	1	-	71	25
Lapeer	70242	1100	60	468	14	8	10	3	576	304
Leelanau	14681	201	9	137	1	1	2	1	111	42
Lenawee	89274	1283	67	682	11	8	21	14	766	371
Livingston	99595	1341	75	570	11	9	20	12	838	425
Luce	6278	89	4	82	-	-	2	2	61	23
Mackinac	10175	134	8	111	1	1	1	-	135	18
Macomb	694166	9484	543	4756	96	75	111	48	6519	3104
Manistee	22464	305	10	246	2	2	4	2	224	96
Marquette	74959	1263	70	491	13	12	16	4	677	321
Mason	26811	400	22	263	4	3	4	3	262	116
Mecosta	37604	446	30	223	8	7	13	6	292	120
Menominee	25872	402	20	267	5	1	2	2	248	-
Midland	73709	1157	69	447	11	7	20	13	735	350
Missaukee	10364	203	7	90	1	-	-	-	106	38
Monroe	131172	1775	97	887	11	8	16	9	1114	526
Montcalm	49064	803	51	416	8	5	12	7	485	239
Montmorency	7376	112	5	105	1	-	1	1	59	25
Muskegon	157045	2538	177	1326	29	17	29	13	1488	795
Newaygo	36363	548	29	360	8	4	10	7	347	172
Oakland	1012028	13840	801	7420	152	115	199	104	9573	5253
Oceana	21855	386	12	187	3	2	1	-	186	98
Ogemaw	16406	281	15	203	1	1	5	4	188	52
Ontonagon	10061	106	9	123	-	-	-	-	74	32
Osceola	19429	294	23	171	4	4	8	4	188	-
Oscoda	7128	110	7	95	1	-	-	-	80	10
Otsego	15090	253	7	141	3	2	3	1	140	66
Ottawa	159624	2617	119	993	38	23	34	13	1463	366
Presque Isle	14149	189	9	161	-	-	1	1	125	39
Roscommon	17829	236	9	222	1	1	1	-	147	82
Saginaw	224726	3555	271	1652	41	30	51	26	1866	899
St. Clair	138887	2056	118	1217	23	12	18	8	1290	655
St. Joseph	57906	915	41	505	7	3	11	9	572	274
Sanilac	39843	654	30	403	7	4	10	6	364	168
Schoolcraft	8419	114	5	103	-	-	2	2	74	31
Shiawassee	69665	1077	56	535	7	4	5	3	700	330
Tuscola	55886	852	53	447	8	3	8	5	431	226
Van Buren	67355	1073	68	588	7	3	14	12	583	403
Washtenaw	267849	3874	242	1441	36	26	50	26	2635	1261
Wayne	2282298	33647	3284	22410	564	430	656	266	16368	7901
Wexford	26210	424	34	254	8	6	8	2	274	111
Co. Not Stated	-	19	2	14	-	-	6	6	-	-

[1] By county of occurrence rather than county of residence.

Table 4.10
Selected Vital Statistics Rates By County, Michigan Residents, 1982

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS[1]	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Michigan	15.0	69.4	8.2	12.1	8.7	14.3	6.9	17.9	8.6
Alcona	10.8	46.7	11.3	9.3	9.3	27.5	18.3	16.7	8.7
Alger	14.1	39.4	11.0	-	-	7.8	7.8	17.3	8.0
Allegan	15.9	52.5	7.7	10.5	6.0	9.7	4.5	16.6	8.4
Alpena	14.6	46.7	9.4	10.6	8.5	10.6	2.1	21.1	8.0
Antrim	16.2	55.1	11.1	7.4	7.4	14.6	7.3	16.5	8.6
Arenac	15.8	53.9	10.3	8.3	8.3	12.3	8.2	17.7	3.7
Baraga	13.8	58.8	11.6	8.4	8.4	16.7	8.3	17.0	12.5
Barry	14.4	53.6	8.0	10.4	6.0	11.8	7.4	15.0	6.7
Bay	15.2	59.5	8.0	7.7	7.2	14.2	8.2	18.2	8.7
Benzie	15.1	48.2	11.1	12.0	12.0	23.7	17.8	21.1	4.2
Berrien	14.9	80.9	8.7	14.8	8.4	12.7	7.2	21.3	10.2
Branch	16.4	61.5	8.6	10.8	6.2	6.1	1.5	20.7	10.8
Calhoun	15.0	70.2	8.9	10.4	5.7	8.9	4.7	18.6	10.7
Cass	13.0	62.4	8.0	19.2	8.0	17.4	9.5	16.0	10.9
Charlevoix	17.1	47.5	9.5	8.9	8.9	17.6	8.8	21.8	9.6
Cheboygan	15.1	53.6	11.7	3.2	-	6.3	6.3	19.2	9.6
Chippewa	13.0	39.1	9.4	2.6	2.6	7.8	5.2	21.2	7.1
Clare	14.9	91.7	11.4	8.3	2.8	13.7	11.0	19.7	8.4
Clinton	15.6	49.7	5.7	5.8	3.5	9.2	5.7	16.5	7.3
Crawford	17.6	59.5	9.0	6.0	6.0	17.6	11.8	24.7	9.6
Delta	15.7	52.8	9.4	12.8	12.8	14.3	9.5	19.0	7.1
Dickinson	14.2	58.0	11.0	13.8	13.8	21.9	8.2	20.4	15.4
Eaton	13.5	51.8	6.6	10.9	6.7	11.6	6.6	18.3	7.5
Emmet	14.0	57.1	8.5	15.0	15.0	15.0	3.0	24.2	10.7
Genesee	15.7	76.6	7.5	11.5	7.3	10.8	5.1	19.1	10.2
Gladwin	14.6	40.0	9.7	3.3	-	6.6	6.6	16.8	3.8
Gogebic	11.8	51.7	14.4	8.6	4.3	8.6	4.3	18.6	5.5
Gd. Traverse	15.8	40.2	7.7	15.6	10.1	16.6	7.8	25.2	11.1
Gratiot.	15.6	67.7	10.0	14.5	11.3	23.9	12.7	18.3	9.2
Hillsdale	15.2	59.9	8.8	9.5	7.9	11.0	4.7	17.6	10.1
Houghton	13.8	47.3	11.9	5.7	5.7	9.4	3.8	14.1	5.9
Huron	15.6	40.4	9.9	7.0	3.5	10.5	7.0	17.0	6.9
Ingham	15.9	70.9	5.9	10.5	6.9	14.5	8.2	21.4	9.8
Ionia	18.1	51.5	7.6	10.5	8.4	11.5	6.3	19.7	8.9
Iosco	19.7	40.4	9.2	8.4	3.4	11.7	10.0	18.8	8.2
Iron	11.8	37.7	12.8	-	-	6.3	6.3	18.0	6.5
Isabella	12.8	70.2	6.0	8.6	7.2	10.0	2.9	17.1	6.8
Jackson	14.3	64.8	8.4	15.8	12.6	14.8	5.6	20.5	9.3
Kalamazoo	14.8	60.8	6.7	14.6	12.4	16.9	8.0	21.0	9.6
Kalkaska	19.5	108.6	8.7	4.5	-	4.5	4.5	20.4	17.8
Kent	18.3	57.9	7.4	10.2	7.2	11.7	5.5	21.8	10.2
Keweenaw	10.9	136.4	24.2	-	-	-	-	31.7	4.0

Selected Vital Statistics Rates By County, Michigan Residents, 1982 (continued)

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS[1]	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[2]	DIVORCES[2]
Lake	13.1	64.2	14.4	9.2	9.2	9.2	-	17.0	6.0
Lapeer	15.7	54.5	6.7	12.7	7.3	9.1	2.7	16.4	8.7
Leelanau	13.7	44.8	9.3	5.0	5.0	9.9	5.0	15.1	5.7
Lenawee	14.4	52.2	7.6	8.6	6.2	16.2	10.8	17.2	8.3
Livingston	13.5	55.9	5.7	8.2	6.7	14.8	8.9	16.[illegible]	8.5
Luce	14.2	44.9	13.1	-	-	22.0	22.0	19.4	7.3
Mackinac	13.2	59.7	10.9	7.5	7.5	7.5	-	26.5	3.5
Macomb	13.7	57.3	6.9	10.1	7.9	11.6	5.0	18.8	8.9
Manistee	13.6	32.8	11.0	6.6	6.6	13.0	6.5	19.9	8.5
Marquette	16.8	55.4	6.6	10.3	9.5	12.6	3.2	18.1	8.6
Mason	14.9	55.0	9.8	10.0	7.5	9.9	7.4	19.5	8.7
Mecosta	11.9	67.3	5.9	17.9	15.7	28.8	13.3	15.5	6.4
Menominee	15.5	49.8	10.3	12.4	2.5	5.0	5.0	19.2	-
Midland	15.7	59.6	6.1	9.5	6.1	17.1	11.1	19.9	9.5
Missaukee	19.6	34.5	8.7	4.9	-	-	-	20.5	7.3
Monroe	13.5	54.6	6.8	6.2	4.5	9.0	5.0	17.0	8.0
Montcalm	16.4	63.5	8.5	10.0	6.2	14.8	8.6	19.8	9.7
Montmorency	15.2	44.6	14.2	8.9	-	8.8	8.8	16.0	6.8
Muskegon	16.2	69.7	8.4	11.4	6.7	11.4	5.1	18.9	10.1
Newaygo	15.1	52.9	9.9	14.6	7.3	18.0	12.6	19.1	9.5
Oakland	13.7	57.9	7.3	11.0	8.3	14.3	7.5	18.9	10.4
Oceana	17.7	31.1	8.6	7.8	5.2	2.6	-	17.0	9.0
Ogemaw	17.1	53.4	12.4	3.6	3.6	17.5	14.0	22.9	6.3
Ontonagon	10.5	84.9	12.2	-	-	-	-	14.7	6.4
Osceola	15.1	78.2	8.8	13.6	13.6	26.8	13.4	19.4	-
Oscoda	15.4	63.6	13.3	9.1	-	-	-	22.4	2.8
Otsego	16.8	27.7	9.3	11.9	7.9	11.8	3.9	18.6	8.7
Ottawa	16.4	45.5	6.2	14.5	8.8	12.9	4.9	18.3	4.6
Presque Isle	13.4	47.6	11.4	-	-	5.3	5.3	17.7	5.5
Roscommon	13.2	38.1	12.5	4.2	4.2	4.2	-	16.5	9.2
Saginaw	15.8	76.2	7.4	11.5	8.4	14.2	7.3	16.6	8.0
St. Clair	14.8	57.4	8.8	11.2	5.8	8.7	3.9	18.6	9.4
St. Joseph	15.8	44.8	8.7	7.7	3.3	11.9	9.7	19.8	9.5
Sanilac	16.4	45.9	10.1	10.7	6.1	15.2	9.1	18.3	8.4
Schoolcraft	13.5	43.9	12.2	-	-	17.2	17.2	17.6	7.4
Shiawassee	15.5	52.0	7.7	6.5	3.7	4.6	2.8	20.1	9.5
Tuscola	15.2	62.2	8.0	9.4	3.5	9.3	5.8	15.4	8.1
Van Buren	15.9	63.4	8.7	6.5	2.8	12.9	11.1	17.3	12.0
Washtenaw	14.5	62.5	5.4	9.3	6.7	12.8	6.7	19.7	9.4
Wayne	14.7	97.6	9.8	16.8	12.8	19.3	7.8	14.3	6.9
Wexford	16.2	80.2	9.7	18.9	14.2	18.8	4.7	20.9	8.5

[1] Ratio per 1,000 live births.

[2] By county of occurrence rather than county of residence. Rate of persons per population rather than events per population.

Table 4.11
Live Births with Selected Risk Factors by County of Residence, Michigan Residents, 1982

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE¹		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
STATE	37,124	26.9	1055	0.8	12,742	9.2	27,534	20.0	9636	7.0	6307	4.6
Alcona	24	22.4	1	0.9	9	8.4	19	17.8	9	8.4	6	5.6
Alger	21	16.5	1	0.8	16	12.6	17	13.4	26	20.5	7	5.5
Allegan	303	22.7	14	1.1	98	7.4	287	21.5	77	5.8	62	4.7
Alpena	112	23.8	5	1.1	48	10.2	83	17.6	41	8.7	15	3.2
Antrim	51	18.8	3	1.1	25	9.2	45	16.5	24	8.8	12	4.4
Arenac	47	19.5	2	0.8	29	12.0	65	27.0	18	7.5	11	4.6
Baraga	29	24.4	1	0.8	14	11.8	29	24.4	13	10.9	9	7.6
Barry	380	56.5	7	1.0	39	5.8	103	15.3	32	4.8	23	3.4
Bay	407	22.4	21	1.2	146	8.0	343	18.9	80	4.4	69	3.8
Benzie	33	19.9	1	0.6	16	9.6	38	22.9	12	7.2	3	1.8
Berrien	837	33.5	24	1.0	234	9.4	701	28.1	187	7.5	173	6.9
Branch	118	18.2	3	0.5	56	8.6	145	22.3	71	10.9	30	4.6
Calhoun	688	32.4	19	0.9	176	8.3	482	22.7	186	8.8	117	5.5
Cass	224	35.8	6	1.0	51	8.2	174	27.8	64	10.2	37	5.9
Charlevoix	110	32.6	1	0.3	22	6.5	60	17.8	16	4.7	12	3.6
Cheboygan	117	36.9	4	1.3	28	8.8	61	19.2	14	4.4	13	4.1
Chippewa	67	17.4	5	1.3	33	8.6	95	24.7	57	14.8	31	8.1
Clare	99	27.5	5	1.4	42	11.7	102	28.3	63	17.5	29	8.1
Clinton	221	25.5	4	0.5	98	11.3	99	11.4	34	3.8	38	4.4
Crawford	37	22.0	4	2.4	14	8.3	44	26.2	8	4.8	6	3.6
Delta	144	23.0	11	1.8	63	10.1	68	10.9	31	5.0	23	3.7
Dickinson	77	21.3	-	-	16	4.4	49	13.5	19	5.2	9	2.5
Eaton	379	31.7	10	0.8	81	6.8	146	12.2	47	3.9	35	2.9
Emmet	113	33.9	1	0.3	33	9.9	47	14.1	29	8.7	8	2.4
Genesee	2682	38.2	51	0.7	681	9.7	1682	24.0	366	5.2	397	5.7
Gladwin	113	37.7	3	1.0	25	8.3	63	21.0	19	6.3	11	3.7
Gogebic	66	28.4	4	1.7	25	10.8	35	15.1	26	11.2	11	4.7
Grand Traverse	139	15.5	7	0.8	71	7.9	95	10.6	37	4.1	16	1.8
Gratiot	94	15.2	2	0.3	50	8.1	109	17.6	50	8.1	23	3.7
Hillsdale	251	39.6	8	1.3	74	11.7	155	24.4	73	11.5	28	4.4
Houghton	166	31.4	15	2.8	84	15.9	52	9.8	29	5.5	18	3.4
Huron	138	24.2	4	0.7	58	10.2	61	10.7	59	10.4	11	1.9
Ingham	1064	24.3	21	0.5	334	7.6	795	18.2	221	5.1	192	4.4
Ionia	223	23.4	3	0.3	103	10.8	199	20.9	66	6.9	58	6.1
Iosco	202	34.0	7	1.2	31	5.2	100	16.8	27	4.5	30	5.1
Iron	62	39.0	2	1.3	11	6.9	22	13.8	7	4.4	6	3.8
Isabella	147	21.1	3	0.4	54	7.7	104	14.9	111	15.9	27	3.9
Jackson	521	24.3	12	0.6	173	8.1	471	21.9	154	7.2	121	5.6
Kalamazoo	1046	32.5	29	0.9	252	7.8	548	17.0	153	4.7	106	3.3
Kalkaska	28	12.7	2	0.9	19	8.6	52	23.5	20	9.0	8	3.6
Kent	1390	16.7	70	0.8	712	8.5	1326	15.9	306	3.7	368	4.4

Table 4.11 (Continued)

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE[1]		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Keweenaw	12	54.5	3	13.6	4	18.2	4	18.2	2	9.1	1	4.5
Lake	32	29.4	2	1.8	9	8.3	40	36.7	14	12.8	11	10.1
Lapeer	293	26.6	7	0.6	110	10.0	234	21.3	51	4.6	55	5.0
Leelanau	27	13.4	1	0.5	24	11.9	12	6.0	5	2.5	2	1.0
Lenawee	376	29.3	16	1.2	125	9.7	286	22.3	137	10.7	57	4.4
Livingston	351	26.2	12	0.9	109	8.1	173	12.9	63	4.7	31	2.3
Luce	16	18.0	1	1.1	11	12.4	23	25.8	10	11.2	4	4.5
Mackinac	32	23.9	3	2.2	16	11.9	23	17.2	16	11.9	4	3.0
Macomb	2466	26.0	57	0.6	724	7.6	1285	13.5	374	3.9	213	2.2
Manistee	54	17.7	3	1.0	20	6.6	48	15.7	21	6.9	11	3.6
Marquette	584	46.2	17	1.3	105	8.3	136	10.8	58	4.6	28	2.2
Mason	77	19.3	4	1.0	46	11.5	76	19.0	26	6.5	21	5.3
Mecosta	139	31.2	13	2.9	32	7.2	74	16.6	31	7.0	14	3.1
Menominee	122	30.3	4	1.0	33	8.2	58	14.4	18	4.5	11	2.7
Midland	423	36.6	6	0.5	71	6.1	166	14.3	46	4.0	38	3.3
Missaukee	49	24.1	1	0.5	26	12.8	39	19.2	11	5.4	8	3.9
Monroe	489	27.5	4	0.2	165	9.3	359	20.2	275	15.5	81	4.6
Montcalm	180	22.4	9	1.1	90	11.2	198	24.7	79	9.8	43	5.4
Montmorency	27	24.1	2	1.8	14	12.5	15	13.4	16	14.3	5	4.5
Muskegon	489	19.3	20	0.8	252	9.9	524	20.6	166	6.5	153	6.0
Newaygo	128	23.4	7	1.3	60	10.9	118	21.5	45	8.2	21	3.8
Oakland	3398	24.6	75	0.5	1043	7.5	1897	13.7	505	3.6	394	2.8
Oceana	92	23.8	9	2.3	50	13.0	95	24.6	29	7.5	14	3.6
Ogemaw	54	19.2	8	2.8	24	8.5	77	27.4	12	4.3	12	4.3
Ontonagon	33	31.1	-	-	14	13.2	13	12.3	22	20.8	8	7.5
Osceola	73	24.8	7	2.4	35	11.9	65	22.1	30	10.2	16	5.4
Oscoda	23	20.9	4	3.6	15	13.6	29	26.4	11	10.0	6	5.5
Otsego	44	17.4	3	1.2	27	10.7	43	17.0	13	5.1	11	4.3
Ottawa	422	16.1	23	0.9	223	8.5	342	13.1	60	2.3	61	2.3
Presque Isle	50	26.5	1	0.5	26	13.8	27	14.3	15	7.9	4	2.1
Roscommon	77	32.6	5	2.1	23	9.7	54	22.9	19	8.1	9	3.8
Saginaw	603	17.0	3	0.1	363	10.2	796	22.4	226	6.4	224	6.3
St. Clair	587	28.6	20	1.0	146	7.1	420	20.4	112	5.4	82	4.0
St. Joseph	210	23.0	11	1.2	88	9.6	241	26.3	72	7.9	46	5.0
Sanilac	218	33.3	11	1.7	67	10.2	125	19.1	63	9.6	29	4.4
Schoolcraft	11	9.6	1	0.9	8	7.0	28	24.6	6	5.3	9	7.9
Shiawassee	256	23.8	12	1.1	121	11.2	208	19.3	66	6.1	46	4.3
Tuscola	246	28.9	7	0.8	86	10.1	172	20.2	51	6.0	42	4.9
Van Buren	322	30.0	8	0.7	111	10.3	319	29.7	99	9.2	60	5.6
Washtenaw	1247	32.2	14	0.4	285	7.4	470	12.1	174	4.5	112	2.9
Wayne	9738	28.9	241	0.7	3767	11.2	8933	26.5	3673	10.9	2080	6.2
Wexford	81	19.1	4	0.9	28	6.6	112	26.4	30	7.1	19	4.5
Co. Not Stated	3	15.8	-	-	2	10.5	6	31.6	2	10.5	2	10.5

[1] Births in which the mother received no care prior to the third trimester, or had five or fewer prenatal visits.

Table 4.12
Live Births by Age of Mother and County of Residence, Michigan Residents, 1982

AREA	TOTAL	AGE OF MOTHER											
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Michigan	137950	319	771	1854	3363	5048	6308	17344	45586	45995	22564	5395	740	7
Alcona	107	-	-	-	6	3	7	16	36	30	17	8	-	-
Alger	127	-	2	2	3	6	7	20	41	37	26	3	-	-
Allegan	1333	1	11	16	34	47	87	195	499	416	180	37	5	-
Alpena	471	1	3	2	9	15	29	58	162	159	70	17	4	-
Antrim	272	-	1	7	4	8	14	34	93	91	43	8	3	-
Arenac	241	-	-	2	9	13	9	33	99	76	19	14	-	-
Baraga	119	-	2	2	5	5	12	26	38	33	17	4	1	-
Barry	672	-	3	4	16	27	48	98	240	224	92	17	1	-
Bay	1816	4	6	15	44	57	86	208	637	620	277	55	14	1
Benzie	166	-	-	1	2	10	10	23	59	56	20	8	-	-
Berrien	2496	13	26	52	82	124	142	426	880	757	341	75	4	-
Branch	650	1	6	7	16	33	37	99	248	200	76	24	2	-
Calhoun	2123	8	14	39	56	93	123	325	795	684	245	58	8	-
Cass	625	1	7	10	19	29	33	98	241	160	94	28	3	-
Charlevoix	337	-	-	3	9	18	20	50	130	102	44	11	-	-
Cheboygan	317	1	-	5	7	11	23	46	107	101	52	8	2	-
Chippewa	384	1	4	11	15	16	19	65	164	105	40	8	1	-
Clare	360	1	2	6	20	17	28	73	133	111	34	8	-	-
Clinton	865	1	2	9	26	30	41	108	279	275	155	43	4	-
Crawford	168	-	1	1	4	4	14	24	59	51	25	9	-	-
Delta	625	1	1	6	15	19	24	65	238	205	90	21	5	-
Dickinson	362	-	-	-	9	13	16	38	138	122	51	12	1	-
Eaton	1196	1	1	14	19	42	53	129	397	404	217	43	5	-
Emmet	333	-	-	4	4	12	12	32	106	107	67	17	4	-
Genesee	7019	20	52	124	201	318	370	1065	2538	2207	908	235	46	-
Gladwin	300	-	-	3	8	17	19	47	130	78	31	12	2	-
Gogebic	232	-	1	5	5	10	9	30	87	60	40	10	5	-
Gd. Traverse	895	-	1	5	10	31	40	87	274	330	171	30	3	-
Gratiot	620	1	3	4	15	34	27	83	240	195	86	14	1	-
Hillsdale	634	-	1	7	20	27	44	99	245	174	84	27	5	-
Houghton	529	-	1	3	14	18	23	59	183	149	98	35	5	-
Huron	570	-	-	1	10	16	23	50	209	203	86	17	5	-
Ingham	4372	10	24	59	99	180	177	539	1428	1458	758	159	20	-
Ionia	951	2	5	18	33	46	42	144	380	274	118	29	4	-
Iosco	594	-	-	11	19	25	37	92	242	180	65	10	5	-
Iron	159	-	1	2	3	6	9	21	61	50	25	2	-	-
Isabella	698	-	1	10	16	25	34	86	242	249	107	12	2	-
Jackson	2146	2	18	39	62	93	101	313	784	696	282	59	10	-
Kalamazoo	3223	11	9	31	55	88	152	335	957	1163	616	129	12	-
Kalkaska	221	-	-	1	7	13	21	42	93	52	29	5	-	-
Kent	8335	15	41	121	191	261	357	971	2719	2983	1316	302	28	1
Keweenaw	22	-	-	-	1	-	-	1	6	8	5	1	1	-

Table 4.12 (Cont.)

AREA	TOTAL	AGE OF MOTHER												
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Lake	109	-	1	2	8	10	11	32	36	20	17	2	2	-
Lapeer	1100	2	4	17	32	51	59	163	383	354	159	31	8	-
Leelanau	201	-	-	1	1	4	2	8	53	75	50	13	2	-
Lenawee	1283	5	6	13	33	52	87	191	430	411	186	55	5	-
Livingston	1341	1	2	7	21	26	52	108	398	496	262	67	9	-
Luce	89	1	-	1	2	4	4	11	33	32	9	3	-	-
Mackinac	134	-	-	-	4	6	7	17	52	41	17	7	-	-
Macomb	9484	7	24	53	129	210	269	685	2871	3698	1779	390	54	-
Manistee	305	-	1	5	5	11	14	36	112	101	40	14	2	-
Marquette	1263	-	5	9	14	33	55	116	491	402	208	38	8	-
Mason	400	-	2	6	13	17	15	53	134	139	57	13	3	1
Mecosta	446	-	1	3	10	16	26	56	196	132	54	7	1	-
Menominee	402	-	-	1	10	12	18	41	156	128	60	16	1	-
Midland	1157	-	6	5	27	39	34	111	354	420	206	63	3	-
Missaukee	203	-	1	2	5	5	16	29	80	63	22	8	1	-
Monroe	1775	-	6	31	44	67	93	241	662	575	247	47	3	-
Montcalm	803	1	2	13	27	40	60	142	326	221	77	29	7	-
Montmorency	112	-	-	-	5	2	5	12	51	27	18	2	2	-
Muskegon	2538	10	15	42	86	98	127	368	928	795	352	72	13	-
Newaygo	548	1	1	7	12	27	35	82	212	170	61	19	3	-
Oakland	13840	22	55	122	195	314	424	1110	3711	5072	3065	767	91	2
Oceana	386	-	2	2	10	23	23	60	149	112	53	10	2	-
Ogemaw	281	-	-	1	11	14	22	48	112	78	32	11	-	-
Ontonagon	106	-	-	4	4	2	9	19	30	32	19	6	-	-
Osceola	294	-	2	3	11	12	11	39	119	76	46	13	1	-
Oscoda	110	-	-	-	6	8	7	21	47	26	9	7	-	-
Otsego	253	-	1	3	7	8	16	35	92	80	37	7	2	-
Ottawa	2617	2	5	12	42	70	79	208	820	981	504	89	13	-
Presque Isle	189	-	-	-	4	8	13	25	66	62	27	7	2	-
Roscommon	236	-	-	4	5	7	16	32	88	76	32	7	1	-
Saginaw	3555	14	31	67	112	169	161	540	1164	1136	567	115	19	-
St. Clair	2056	3	12	26	41	68	89	236	774	682	276	75	9	1
St. Joseph	915	1	6	13	26	46	56	147	321	310	113	18	5	-
Sanilac	654	-	4	5	20	26	42	97	245	210	81	18	3	-
Schoolcraft	114	-	1	2	6	6	6	21	49	33	9	1	1	-
Shiawassee	1077	1	5	11	29	42	51	138	389	358	151	36	4	-
Tuscola	852	-	2	15	25	43	42	127	309	270	117	24	5	-
Van Buren	1073	2	4	14	40	53	64	175	377	344	147	27	1	-
Washtenaw	3874	9	9	24	70	114	128	345	1014	1367	899	214	26	-
Wayne	33647	141	300	642	997	1408	1642	4989	10940	10634	5327	1411	205	-
Wexford	424	-	4	4	11	16	37	72	169	115	53	12	2	1
Co. Not Stated	19	-	1	-	1	1	2	5	6	6	2	-	-	-

TABLE 4.13
Vital Statistics for Residents of Selected Michigan Cities[1], 1982

AREA	LIVE BIRTHS	DEATHS	INFANT DEATHS		FETAL DEATHS	
			NUMBER	RATE	NUMBER	RATE
Allen Park	337	305	3	8.9	1	3.0
Ann Arbor	1,403	464	10	7.1	12	8.5
Battle Creek	764	443	16	20.9	5	6.5
Bay City	737	457	8	10.9	9	12.1
Burton City	363	206	6	16.5	2	5.5
Dearborn	1,069	1,025	15	14.0	10	9.3
Dearborn Heights	696	527	6	8.6	7	10.0
Detroit	18,476	13,201	402	21.8	159	8.5
East Detroit	445	377	3	6.7	3	6.7
East Lansing	445	127	7	15.7	4	8.9
Farmington Hills	691	396	6	8.7	5	7.2
Ferndale	465	317	6	12.9	3	6.4
Flint	3,337	1,540	49	14.7	14	4.2
Garden City	481	226	10	20.8	8	16.4
Grand Rapids	3,573	1,798	46	12.9	38	10.5
Highland Park	413	323	10	24.2	-	-
Holland	453	253	7	15.5	1	2.2
Inkster	575	304	7	12.2	5	8.6
Jackson	745	484	15	20.1	5	6.7
Kalamazoo	1,416	646	24	16.9	14	9.8
Kentwood	474	140	5	10.5	1	2.1
Lansing	2,580	909	31	12.0	23	8.8
Lincoln Park	633	417	13	20.5	4	6.3
Livonia	1,093	772	8	7.3	4	3.6
Madison Heights	516	250	3	5.8	4	7.7
Midland	573	255	5	8.7	8	13.8
Muskegon	809	466	13	16.1	9	11.0
Oak Park	522	313	8	15.3	-	-
Pontiac	1,574	724	29	18.4	19	11.9
Portage	533	167	6	11.3	2	3.7
Port Huron	684	374	9	13.2	5	7.3
Roseville	879	399	9	10.2	2	2.3
Royal Oak	1,068	630	16	15.0	8	7.4
Saginaw	1,596	730	19	12.0	10	6.2
St. Clair Shores	821	683	11	13.4	4	4.8
Southfield	794	756	9	11.3	4	5.0
Southgate	411	237	6	14.6	2	4.8
Sterling Heights	1,476	445	11	7.5	9	6.1
Taylor	1,228	470	11	9.0	6	4.9
Troy	868	353	5	5.8	4	4.6
Warren	1,831	1,195	12	6.6	7	3.8
Westland	1,252	575	5	4.0	8	6.3
Wyandotte	519	368	6	11.6	3	5.7
Wyoming	1,102	376	10	9.1	-	-

[1] 25,000 population or over according to the 1980 census.

Table 4.14
Number of Deaths by Underlying Cause and County of Residence, Michigan, 1982

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
STATE	75536	41	610	16566	4219	4475	1500	1773	702	648	3249
Alcona	112	-	2	26	7	6	2	3	3	2	3
Alger	99	-	-	27	7	11	3	2	-	2	2
Allegan	644	1	2	148	31	40	9	17	12	2	37
Alpena	303	-	1	69	16	20	7	7	2	4	13
Antrim	186	-	2	40	14	10	2	3	3	3	5
Arenac	157	-	2	39	10	11	3	3	1	1	10
Baraga	100	-	-	24	7	3	4	5	2	-	3
Barry	374	-	4	79	18	19	6	11	5	5	15
Bay	961	1	2	229	59	55	15	25	4	6	65
Benzie	122	-	1	22	3	10	3	4	1	1	-
Berrien	1463	-	10	304	82	85	20	33	8	7	69
Branch	342	-	1	73	19	15	7	7	3	3	19
Calhoun	1268	-	13	298	68	93	20	42	14	9	52
Cass	384	-	3	81	21	28	5	10	4	1	12
Charlevoix	186	-	-	44	9	11	1	9	3	1	10
Cheboygan	246	-	-	59	12	19	3	10	3	2	10
Chippewa	279	-	1	50	17	9	2	6	1	1	14
Clare	277	-	3	60	16	20	5	4	2	2	11
Clinton	314	-	1	79	20	19	8	11	1	2	18
Crawford	86	-	1	16	4	5	1	-	-	3	3
Delta	373	-	2	72	17	14	8	5	6	7	15
Dickinson	281	-	4	78	16	22	6	11	3	3	17
Eaton	584	-	2	124	22	29	11	13	5	12	32
Emmet	202	-	2	35	8	13	2	5	-	2	5
Genesee	3330	-	22	706	175	191	62	63	39	33	143
Gladwin	200	-	3	44	5	16	7	3	-	5	8
Gogebic	283	-	2	54	17	12	6	5	2	2	10
Grand Traverse	438	-	1	102	26	28	7	16	-	3	22
Gratiot	400	-	4	66	19	14	7	4	4	5	13
Hillsdale	366	-	3	80	24	19	7	10	4	4	12
Houghton	456	2	2	94	28	23	8	9	5	1	20
Huron	362	-	2	78	24	13	5	10	8	6	12
Ingham	1614	1	10	361	78	100	33	41	14	19	76
Ionia	398	-	5	98	23	22	8	10	8	3	24
Iosco	278	1	-	65	18	17	7	9	2	1	11
Iron	172	-	1	42	10	14	5	3	3	1	6
Isabella	327	-	1	59	13	17	2	5	2	3	17
Jackson	1254	-	4	291	71	87	27	22	11	9	64
Kalamazoo	1459	-	11	304	74	66	38	38	12	20	56
Kalkaska	99	-	1	23	6	9	1	1	2	1	3
Kent	3376	2	24	739	179	195	75	79	38	30	143

Table 4.14 (Continued)

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intra-thoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
Keweenaw	49	-	-	9	3	1	2	-	-	-	3
Lake	120	-	1	26	4	7	4	4	2	1	4
Lapeer	468	-	4	101	26	24	5	12	6	6	22
Leelanau	137	-	1	27	8	5	2	1	1	3	7
Lenawee	682	-	7	160	28	44	18	18	7	10	35
Livingston	570	1	3	132	31	41	12	16	7	3	22
Luce	82	-	2	11	2	2	1	2	-	1	3
Mackinac	111	-	-	21	2	4	1	7	1	1	5
Macomb	4756	1	37	1181	266	351	121	106	44	38	255
Manistee	246	-	5	57	8	11	9	6	3	6	14
Marquette	491	-	2	106	30	28	12	9	4	6	17
Mason	263	-	2	47	14	10	3	9	1	1	9
Mecosta	223	-	3	51	11	19	2	4	1	1	13
Menominee	267	-	2	59	15	12	5	8	1	2	16
Midland	447	-	3	110	31	32	5	10	2	4	26
Missaukee	90	-	1	20	5	5	1	-	-	2	7
Monroe	887	-	5	197	44	43	22	31	10	7	40
Montcalm	416	-	3	79	27	20	4	9	2	6	11
Montmorency	105	-	-	23	4	6	2	6	-	-	5
Muskegon	1326	-	15	308	64	98	32	32	21	6	55
Newaygo	360	-	-	80	21	18	4	12	1	3	21
Oakland	7420	5	54	1668	442	407	180	171	61	66	341
Oceana	187	1	2	45	13	10	7	5	1	3	6
Ogemaw	203	-	-	58	12	19	3	6	1	3	14
Ontonagon	123	-	2	19	5	6	-	-	1	-	7
Osceola	171	-	1	32	5	14	3	2	-	2	6
Oscoda	95	-	1	20	3	4	-	3	3	1	6
Otsego	141	-	-	31	10	4	3	3	-	1	10
Ottawa	993	-	4	216	75	24	18	27	5	9	58
Presque Isle	161	-	2	34	11	12	-	4	-	3	4
Roscommon	222	-	1	68	21	24	2	3	3	4	11
Saginaw	1652	2	11	377	104	87	27	43	18	18	80
St. Clair	1217	1	9	265	68	69	26	22	11	14	55
St. Joseph	505	-	5	121	33	34	7	20	3	5	19
Sanilac	403	1	2	85	22	12	5	14	5	3	24
Schoolcraft	103	-	-	16	1	7	3	3	-	-	2
Shiawassee	535	-	2	118	26	34	10	11	3	4	30
Tuscola	447	1	1	95	20	18	11	15	5	4	22
Van Buren	588	-	7	128	33	30	13	16	9	4	23
Washtenaw	1441	-	8	321	64	72	42	40	21	15	67
Wayne	22410	20	247	4707	1301	1381	412	485	191	152	785
Wexford	254	-	-	53	13	15	3	3	7	3	9
Co. Not Stated	14	-	-	2	-	1	-	1	-	-	-

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1982 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct. Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis. of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
STATE	1347	102	38288	30099	274	5839	1284	792	1701	2205	279	1244
Alcona	-	-	59	39	-	18	1	1	2	6	-	2
Alger	-	-	53	36	-	14	2	1	-	7	-	1
Allegan	15	2	317	244	6	47	14	6	15	17	-	9
Alpena	3	-	164	135	-	21	4	4	11	10	-	3
Antrim	3	-	111	73	2	29	6	1	1	3	-	3
Arenac	3	-	76	60	-	13	2	1	2	3	2	-
Baraga	2	-	57	50	-	4	2	1	-	2	-	-
Barry	8	1	180	144	4	18	10	4	14	13	2	4
Bay	18	1	553	437	-	64	41	11	8	19	5	11
Benzie	1	-	72	50	1	11	9	1	2	5	-	1
Berrien	24	1	745	591	3	116	26	9	33	56	3	26
Branch	15	-	179	135	1	31	9	3	9	4	2	4
Calhoun	28	4	633	489	2	107	23	12	37	46	5	18
Cass	2	3	198	162	1	26	3	6	6	14	3	5
Charlevoix	3	-	100	86	-	11	2	1	4	4	1	-
Cheboygan	4	-	132	111	1	14	2	4	5	13	-	2
Chippewa	10	2	150	125	-	17	3	5	10	6	-	3
Clare	3	1	149	117	1	24	3	4	3	15	3	7
Clinton	7	-	147	109	1	29	5	3	8	8	1	1
Crawford	1	3	42	34	-	6	2	-	1	6	1	1
Delta	14	1	192	136	2	37	10	7	14	9	1	7
Dickinson	3	1	138	102	1	22	9	4	7	10	-	1
Eaton	5	4	296	212	2	59	20	3	17	16	1	9
Emmet	1	-	109	72	3	24	2	8	2	9	1	4
Genesee	77	2	1677	1330	7	253	58	29	70	105	21	47
Gladwin	4	-	101	77	-	12	7	5	4	4	3	2
Gogebic	7	-	160	135	-	19	3	3	13	9	1	6
Grand Traverse	4	-	218	170	1	29	12	6	10	14	2	3
Gratiot	5	1	247	181	-	53	7	6	13	5	1	2
Hillsdale	16	-	189	153	-	28	4	4	9	13	-	3
Houghton	9	-	258	211	-	32	12	3	12	19	1	8
Huron	7	-	214	160	3	40	7	4	13	10	4	4
Ingham	40	7	759	578	7	120	31	23	35	56	6	26
Ionia	6	1	205	141	4	49	9	2	9	13	-	5
Iosco	3	2	154	130	2	15	2	5	3	9	1	4
Iron	2	-	85	73	-	11	-	1	6	8	-	2
Isabella	6	1	181	134	1	37	6	3	11	9	1	1
Jackson	27	-	637	479	5	102	42	9	23	42	10	16
Kalamazoo	18	2	757	573	7	134	19	24	41	45	5	10
Kalkaska	2	-	50	38	1	4	5	2	2	1	-	1
Kent	39	5	1719	1297	12	284	81	45	73	110	10	34

Table 4.14 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct. Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis. of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
Keweenaw	1	-	34	30	-	4	-	-	1	1	-	-
Lake	2	-	70	51	2	13	4	-	4	3	-	1
Lapeer	16	1	230	170	1	39	10	10	8	17	2	5
Leelanau	4	-	73	58	-	9	4	2	2	5	-	3
Lenawee	21	-	321	226	3	61	20	11	15	28	1	5
Livingston	9	4	268	210	2	35	7	14	18	19	3	5
Luce	1	-	44	26	2	7	8	1	1	8	-	2
Mackinac	3	-	64	48	-	9	5	2	1	3	-	7
Macomb	88	3	2376	1909	20	312	86	49	99	123	20	90
Manistee	2	-	145	85	5	33	16	6	1	2	3	2
Marquette	9	-	251	183	1	45	19	3	12	19	2	8
Mason	4	-	150	121	1	22	5	1	6	15	1	6
Mecosta	6	1	94	76	1	13	2	2	13	12	-	1
Menominee	6	1	146	104	4	21	13	4	9	10	1	5
Midland	5	2	223	171	-	34	12	6	12	18	3	2
Missaukee	2	-	49	42	-	5	1	1	2	2	-	-
Monroe	17	3	453	360	4	57	17	15	18	29	4	10
Montcalm	6	1	216	156	4	41	7	8	15	11	3	7
Montmorency	2	-	55	49	-	5	-	1	1	5	-	1
Muskegon	36	-	672	536	5	96	20	15	21	41	8	19
Newaygo	7	-	190	139	-	38	9	4	13	12	-	2
Oakland	125	3	3786	3017	22	584	84	79	153	207	27	120
Oceana	4	-	92	68	1	19	3	1	1	6	1	1
Ogemaw	5	-	93	80	1	8	3	1	7	6	-	5
Ontonagon	2	-	81	48	-	15	15	3	2	2	-	1
Osceola	3	-	92	70	-	19	3	-	5	5	1	1
Oscoda	-	-	57	37	-	16	1	3	2	3	-	2
Otsego	3	-	65	53	-	6	5	1	6	4	-	4
Ottawa	16	-	492	360	4	82	33	13	32	32	1	6
Presque Isle	3	-	84	69	-	11	3	1	4	7	3	1
Roscommon	2	-	110	88	-	18	3	1	3	10	-	3
Saginaw	23	4	821	654	7	114	32	14	35	48	3	19
St. Clair	26	2	608	451	6	104	29	18	28	43	3	18
St. Joseph	9	-	264	215	1	32	10	6	19	9	2	6
Sanilac	5	-	234	179	2	43	6	4	5	17	1	6
Schoolcraft	3	-	61	49	-	9	2	1	2	6	-	-
Shiawassee	14	-	290	206	1	61	16	6	10	16	2	3
Tuscola	7	-	241	178	1	49	11	2	11	19	-	4
Van Buren	10	2	294	249	1	36	5	3	6	14	3	6
Washtenaw	23	2	695	522	6	118	34	15	51	37	3	17
Wayne	369	27	11104	9057	85	1580	194	188	478	550	78	542
Wexford	3	1	129	82	-	32	12	3	10	8	3	2
Co. Not Stated	-	-	8	8	-	-	-	-	1	-	-	-

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1982 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx. and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis.	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
STATE	709	11	488	965	330	5514	3113	1555	1558	1103	936	86
Alcona	1	-	-	1	-	6	5	4	1	2	-	-
Alger	-	-	-	-	1	5	3	-	3	1	1	-
Allegan	7	-	6	7	12	56	23	19	4	7	2	-
Alpena	2	-	-	4	-	13	20	13	7	3	-	-
Antrim	2	-	2	2	1	5	8	6	2	2	1	-
Arenac	-	-	1	1	-	13	9	6	3	3	3	-
Baraga	1	-	-	1	-	4	8	3	5	1	-	-
Barry	4	-	3	4	1	30	19	14	5	6	3	-
Bay	13	-	5	8	2	41	38	25	13	7	1	-
Benzie	-	-	-	1	1	4	6	3	3	4	2	-
Berrien	12	-	13	17	6	115	63	26	37	18	18	-
Branch	5	-	5	-	1	24	16	7	9	4	-	-
Calhoun	13	-	3	10	5	86	44	22	22	17	12	-
Cass	3	-	6	5	2	32	19	10	9	3	2	-
Charlevoix	-	-	1	3	-	11	11	4	7	4	-	-
Cheboygan	1	-	-	1	-	17	10	8	2	1	1	-
Chippewa	4	-	-	1	1	18	18	5	13	5	2	-
Clare	2	-	1	1	1	12	9	6	3	5	3	-
Clinton	3	-	3	2	2	26	24	10	14	2	-	-
Crawford	2	-	1	1	-	9	4	2	2	-	-	-
Delta	4	-	2	5	-	32	14	5	9	4	1	-
Dickinson	5	-	-	5	1	17	5	1	4	6	1	-
Eaton	6	-	5	7	6	50	27	16	11	13	-	-
Emmet	3	-	2	5	-	15	8	2	6	3	3	-
Genesee	21	-	20	41	23	220	171	102	69	58	46	5
Gladwin	2	-	1	-	1	15	11	6	5	3	2	-
Gogebic	5	-	-	1	1	16	4	3	1	4	-	-
Grand Traverse	-	-	3	7	3	43	21	15	6	6	1	-
Gratiot	6	-	2	7	3	16	19	10	9	3	1	-
Hillsdale	4	-	1	4	-	22	15	9	6	7	-	-
Houghton	5	-	3	-	-	26	9	4	5	8	-	-
Huron	1	-	-	1	2	8	12	5	7	6	-	-
Ingham	15	-	23	18	6	146	77	42	35	25	10	-
Ionia	4	-	1	6	2	16	21	8	13	7	-	-
Iosco	1	-	1	-	3	22	8	4	4	2	1	-
Iron	-	-	-	-	3	11	6	5	1	6	-	-
Isabella	4	-	4	3	-	30	14	9	5	3	-	-
Jackson	13	-	11	20	2	90	51	30	21	12	5	-
Kalamazoo	12	-	17	24	6	122	55	22	33	22	10	-
Kalkaska	1	-	1	-	2	5	7	4	3	3	-	-
Kent	26	1	29	46	12	271	174	84	90	39	25	3

Table 4.14 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx. and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis.	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
Keweenaw	-	-	-	-	-	3	-	-	-	-	-	-
Lake	-	-	-	1	-	6	5	3	2	1	-	-
Lapeer	2	-	5	6	3	33	29	18	11	4	1	2
Leelanau	-	-	2	-	1	13	5	3	2	1	-	-
Lenawee	9	-	1	8	1	67	26	13	13	9	3	-
Livingston	4	-	7	3	3	44	33	17	16	12	5	1
Luce	1	-	-	1	1	7	2	-	2	1	-	-
Mackinac	1	-	1	-	-	5	3	3	-	2	-	-
Macomb	43	2	34	57	14	300	184	94	90	78	23	6
Manistee	4	-	2	1	-	12	7	3	4	3	-	-
Marquette	5	-	7	6	2	29	16	7	9	15	2	-
Mason	3	-	1	2	1	11	11	4	7	3	-	-
Mecosta	2	-	1	7	1	19	9	6	3	2	2	-
Menominee	1	-	-	1	4	13	9	5	4	1	-	-
Midland	8	-	2	7	2	27	14	8	6	10	1	-
Missaukee	1	-	-	-	1	7	5	1	4	-	-	-
Monroe	8	-	2	8	4	67	50	33	17	12	2	1
Montcalm	6	-	3	3	1	29	26	11	15	6	2	-
Montmorency	1	-	-	-	1	7	4	3	1	4	1	-
Muskegon	16	-	11	15	3	85	51	25	26	16	9	-
Newaygo	3	-	2	3	2	24	16	11	5	5	-	1
Oakland	67	2	51	91	30	474	355	192	163	141	58	6
Oceana	-	-	1	1	2	16	11	8	3	1	2	-
Ogemaw	1	1	-	1	-	16	8	4	4	-	2	-
Ontonagon	-	-	-	-	-	6	5	4	1	3	-	-
Osceola	4	-	1	3	-	6	10	4	6	3	4	-
Oscoda	-	-	1	-	-	6	2	2	-	-	-	1
Otsego	6	-	1	1	1	12	3	2	1	4	-	-
Ottawa	10	-	14	15	16	69	47	24	23	14	9	-
Presque Isle	3	-	-	1	-	12	7	5	2	-	-	-
Roscommon	2	-	1	-	-	11	6	4	2	4	1	-
Saginaw	9	-	13	26	9	122	88	34	54	17	28	1
St. Clair	15	-	8	11	7	87	62	33	29	19	7	-
St. Joseph	5	-	2	4	2	36	15	6	9	5	1	-
Sanilac	2	-	1	3	2	18	21	13	8	-	-	-
Schoolcraft	3	-	-	-	1	6	5	5	-	-	-	-
Shiawassee	3	-	5	1	4	34	24	16	8	9	-	-
Tuscola	4	-	3	2	1	33	20	10	10	5	-	-
Van Buren	6	-	2	4	5	54	30	14	16	13	6	-
Washtenaw	7	-	13	21	10	126	68	37	31	27	14	-
Wayne	229	5	113	375	83	1826	718	282	436	314	593	59
Wexford	2	-	1	6	-	14	17	9	8	4	2	-
Co. Not Stated	-	-	-	-	-	2	-	-	-	-	1	-

Table 4.15
Reported Cases of Certain Communicable Diseases by County
Michigan Residents, 1982

AREA	TOTAL	GONORRHEA	CHICKEN POX	STREP¹	HEPATITIS (ALL TYPES)	SAMONELLA INFECTIONS	TUBERCULOSIS	SYPHILIS	MUMPS	DYSENTERY BACILLARY	MEASLES	RUBELLA	MENINGOCOCCAL INFECTIONS	WHOOPING COUGH	ALL OTHER¹
Michigan	79803	32848	27879	12302	1745	1186	864	921	410	188	64	59	81	34	1222
Alcona	66	2	61	-	1	-	1	-	-	-	-	-	-	-	1
Alger	81	4	72	-	1	-	2	-	1	-	-	-	-	-	1
Allegan	505	70	288	118	2	10	2	2	3	2	-	2	1	1	4
Alpena	75	9	41	16	-	-	3	1	-	-	-	-	-	-	5
Antrim	189	5	151	27	3	-	-	-	1	-	-	1	-	-	1
Arenac	52	2	32	15	-	-	-	1	-	-	-	-	-	-	2
Baraga	8	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Barry	228	15	114	84	6	3	-	-	2	2	-	-	-	-	2
Bay	774	133	375	217	7	11	11	4	6	2	-	1	-	-	7
Benzie	142	15	93	26	1	-	1	1	1	-	-	-	-	1	3
Berrien	1624	856	551	82	48	23	28	6	6	4	-	-	4	-	16
Branch	276	35	132	93	-	4	5	1	-	2	-	1	-	-	3
Calhoun	1146	365	531	128	16	27	7	17	11	8	4	5	4	-	23
Cass	334	74	175	66	5	3	2	1	2	-	-	-	-	-	6
Charlevoix	66	6	48	5	-	-	2	-	2	-	-	-	-	-	3
Cheboygan	59	11	26	14	2	-	1	-	-	-	1	1	-	-	3
Chippewa	231	17	98	103	6	2	1	-	1	-	-	-	-	1	2
Clare	84	4	54	19	-	1	2	1	1	-	-	-	-	-	2
Clinton	277	23	190	38	6	8	2	-	4	1	-	1	-	-	4
Crawford	68	5	40	21	-	-	-	-	1	-	-	-	-	-	1
Delta	399	50	233	105	-	4	3	-	1	-	1	-	-	-	2
Dickinson	191	15	128	37	1	2	-	1	1	-	-	-	-	-	6
Eaton	410	63	147	166	7	13	6	1	1	3	-	-	-	1	2
Emmet	37	10	5	9	1	3	1	1	-	-	-	-	-	-	7
Genesee	4394	2578	1077	513	58	35	30	27	7	5	-	-	1	1	62
Gladwin	15	9	-	1	1	-	-	-	2	-	1	-	-	-	1
Gogebic	75	1	31	37	-	1	5	-	-	-	-	-	-	-	-
Gd Traverse	249	27	164	43	4	-	2	3	2	-	-	1	-	-	3
Gratiot	249	17	160	45	2	8	2	2	1	2	-	-	3	-	7
Hillsdale	295	18	183	77	2	3	7	-	1	-	1	-	-	-	3
Houghton	365	8	117	218	4	1	4	-	1	-	-	4	2	1	5
Huron	144	3	132	4	2	-	-	2	-	-	-	-	-	-	1
Ingham	2329	1605	483	36	52	61	35	13	8	12	3	1	3	-	17
Ionia	418	34	249	107	12	5	2	-	2	1	-	-	1	1	4
Iosco	336	15	51	243	4	-	1	-	-	-	1	-	-	-	21
Iron	69	-	39	25	-	-	4	1	-	-	-	-	-	-	-
Isabella	147	31	55	41	3	5	1	-	1	-	-	-	1	-	9
Jackson	772	469	176	59	12	17	8	16	1	2	1	2	1	-	8
Kalamazoo	2240	752	853	439	59	14	20	23	3	3	-	1	4	2	67
Kalkaska	295	11	262	17	-	-	1	-	-	-	-	-	2	-	2
Kent	4680	2190	1446	763	79	47	33	23	9	16	2	1	6	5	60
Keweenaw	8	-	6	2	-	-	-	-	-	-	-	-	-	-	-

Table 4.15 (Continued)

AREA	TOTAL	GONOR-RHEA	CHICK-EN POX	STREP[1]	HEPA-TITIS (ALL TYPES)	SAMO-NELLA INFEC-TIONS	TUBER-CULO-SIS	SYPHI-LIS	MUMPS	DYSEN-TERY BACIL-LARY	MEAS-LES	RU-BELLA	MENIN-GOCOC-CAL INFEC-TIONS	WHOOP-ING COUGH	ALL OTHER[2]
Lake	85	8	75	1	-	-	-	-	-	-	-	-	-	-	1
Lapeer	220	11	164	21	6	3	3	2	4	1	1	-	1	-	3
Leelanau	43	3	34	5	1	-	-	-	-	-	-	-	-	-	-
Lenawee	456	121	206	67	20	20	6	3	1	1	-	-	-	-	11
Livingston	567	31	271	219	12	11	1	1	5	-	-	-	1	1	14
Luce	81	6	58	15	1	-	-	-	-	-	-	-	-	-	1
Mackinac	60	18	34	5	2	-	1	-	-	-	-	-	-	-	-
Macomb	3292	447	1897	537	145	105	41	25	15	8	1	1	2	-	68
Manistee	57	1	18	37	-	-	-	1	-	-	-	-	-	-	-
Marquette	529	51	21	425	14	6	1	4	-	1	-	-	-	-	6
Mason	142	24	65	40	3	-	1	3	3	-	-	-	-	-	3
Mecosta	174	66	62	16	2	3	-	2	-	-	-	22	-	-	1
Menominee	183	18	86	62	3	1	1	-	3	-	-	-	-	-	9
Midland	392	49	283	33	7	6	1	2	-	1	-	-	-	-	10
Missaukee	44	8	25	10	1	-	-	-	-	-	-	-	-	-	-
Monroe	643	83	400	111	21	8	2	1	2	-	1	-	-	-	14
Montcalm	483	26	315	97	28	5	3	-	5	1	-	-	-	-	3
Montmorency	28	-	19	5	1	-	-	1	2	-	-	-	-	-	-
Muskegon	1450	689	451	189	34	21	20	-	5	3	8	-	2	-	28
Newaygo	235	17	65	126	9	6	2	3	-	-	-	1	-	3	3
Oakland	8681	1758	3701	2371	299	116	67	67	48	18	9	6	5	4	212
Oceana	78	3	36	22	7	3	-	4	2	-	-	-	1	-	-
Ogemaw	54	2	48	1	-	-	2	1	-	-	-	-	-	-	-
Ontonagon	58	1	50	5	-	1	1	-	-	-	-	-	-	-	-
Osceola	46	8	22	15	-	-	1	-	-	-	-	-	-	-	-
Oscoda	6	2	1	-	-	-	1	1	-	-	-	-	1	-	-
Otsego	141	4	68	62	-	1	-	-	2	-	-	-	-	-	4
Ottawa	1155	125	647	207	39	17	13	3	76	1	1	-	2	3	21
Presque Isle	56	2	40	6	-	-	2	-	1	-	2	1	-	-	2
Roscommon	144	7	107	21	2	1	3	-	-	1	-	-	-	-	2
Saginaw	1662	1085	350	86	29	35	22	21	2	9	-	-	-	-	23
St Clair	814	187	381	167	17	30	9	1	1	2	-	1	1	1	16
St Joseph	282	47	154	58	8	2	1	-	2	-	1	-	1	1	7
Sanilac	6	4	-	-	-	-	2	-	-	-	-	-	-	-	-
Schoolcraft	96	10	8	74	4	-	-	-	-	-	-	-	-	-	-
Shiawassee	366	17	216	90	9	8	7	-	4	3	-	-	-	-	12
Tuscola	533	31	427	50	6	4	4	1	7	1	-	-	-	-	2
Van Buren	1114	33	767	252	16	8	7	1	-	-	-	-	2	1	27
Washtenaw	1354	896	223	19	49	54	22	12	3	19	-	1	3	1	52
Wayne	29470	17378	6943	2689	536	399	382	612	128	53	25	4	26	5	290
Wexford	121	14	64	27	7	1	-	1	6	-	-	-	-	-	1

[1] Streptococcal Sore Throat (including Scarlet Fever).

[2] Includes: Meningitis, Aseptic - 512; Meningitis, (Influenzal) - 251; Meningitis, Excluding Aseptic - 218; Staphylococcal Infections - 89; Encephalitis, Infectious - 73; Malaria - 29; Dysentery, Amebic - 17; Typhoid Fever - 14; Food Poisonings - 8; Diarrhea Epidemic (Infants < 1 Year) - 2; Ring Worm - 2; Undulant Fever - 1; Rocky Mountain Spotted Fever - 1; Trichinosis - 1; Cholera - 1; Congenital Rubella Syndrome - 1; Psittacosis - 1; Tetanus - 1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1982

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
	I. INFECTIOUS AND PARASITIC DISEASES (001-139)	
3	Other salmonella infections	4
8	Intestinal infections due to other organisms	1
9	Ill-defined intestinal infections	9
11	Pulmonary tuberculosis	29
12	Other respiratory tuberculosis	1
13	Tuberculosis of meninges and central nervous system	2
15	Tuberculosis of bones and joints	1
17	Tuberculosis of other organs	1
18	Miliary tuberculosis	7
27	Other zoonotic bacterial diseases	2
35	Erysipelas	1
36	Meningococcal infection	11
38	Septicemia	428
39	Actinomycotic infections	1
40	Other bacterial diseases	6
41	Bacterial infection in conditions classified elsewhere and of unspecified site	11
46	Slow virus infection of central nervous system	8
47	Meningitis due to enterovirus	2
48	Other enterovirus diseases of central nervous system	1
49	Other non-arthropod-borne viral diseases of central nervous system	3
52	Chickenpox	3
53	Herpes zoster	9
54	Herpes simplex	12
55	Measles	1
70	Viral hepatitis	16
78	Other diseases due to viruses and Chlamydiae	2
79	Viral infection in conditions classified elsewhere and of unspecified site	9
112	Candidiasis	10
115	Histoplasmosis	3
117	Other mycoses	10
128	Other and unspecified helminthiases	1
135	Sarcoidosis	17
136	Other and unspecified infectious and parasitic diseases	14
137	Late effects of tuberculosis	9
138	Late effects of acute poliomyelitis	3
139	Late effects of other infectious and parasitic diseases	3
	II. NEOPLASMS (140-239)	
[illegible]	Malignant neoplasm of lip	3
141	Malignant neoplasm of tongue	77
142	Malignant neoplasm of major salivary glands	16
143	Malignant neoplasm of gum	9
144	Malignant neoplasm of floor of mouth	21
145	Malignant neoplasm of other and unspecified parts of mouth	52
146	Malignant neoplasm of oropharynx	34
147	Malignant neoplasm of nasopharynx	23
148	Malignant neoplasm of hypopharynx	21
149	Malignant neoplasm of other and ill-defined sites within the lip, oral cavity and pharynx	50
150	Malignant neoplasm of oesophagus	329
151	Malignant neoplasm of stomach	548
152	Malignant neoplasm of small intestine, including duodenum	36
153	Malignant neoplasm of colon	1703
154	Malignant neoplasm of rectum, rectosigmoid junction and anus	338
155	Malignant neoplasm of liver and intrahepatic bile ducts	205
156	Malignant neoplasm of gallbladder and extrahepatic bile ducts	170
157	Malignant neoplasm of pancreas	788
158	Malignant neoplasm of retroperitoneum and peritoneum	19
159	Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum	83
160	Malignant neoplasm of nasal cavities, middle ear and accessory sinuses	14
161	Malignant neoplasm of larynx	140
162	Malignant neoplasm of trachea, bronchus and lung	4299
163	Malignant neoplasm of pleura	6
164	Malignant neoplasm of thymus, heart and mediastinum	16
170	Malignant neoplasm of bone and articular cartilage	31
171	Malignant neoplasm of connective and other soft tissue	118
172	Malignant melanoma of skin	171
173	Other malignant neoplasm of skin	56
174	Malignant neoplasm of female breast	1493
175	Malignant neoplasm of male breast	7
179	Malignant neoplasm of uterus, part unspecified	108
180	Malignant neoplasm of cervix uteri	154
182	Malignant neoplasm of body of uterus	106
183	Malignant neoplasm of ovary and other uterine adnexa	432
184	Malignant neoplasm of other and unspecified female genital organs	36
185	Malignant neoplasm of prostate	904
186	Malignant neoplasm of testis	24
187	Malignant neoplasm of penis and other male genital organs	9
188	Malignant neoplasm of bladder	344
189	Malignant neoplasm of kidney and other and unspecified urinary organs	358
[illegible]	Malignant neoplasm of eye	10
[illegible]	Malignant neoplasm of brain	420
192	Malignant neoplasm of other and unspecified parts of nervous system	12
193	Malignant neoplasm of thyroid gland	22
194	Malignant neoplasm of other endocrine glands and related structures	25
195	Malignant neoplasm of other and ill-defined sites	109
199	Malignant neoplasm without specification of site	1089
200	Lymphosarcoma and reticulosarcoma	180
201	Hodgkin's disease	85
202	Other malignant neoplasm of lymphoid and histiocytic tissue	377
203	Multiple myeloma and immunoproliferative neoplasms	238
204	Lymphoid leukemia	174
205	Myeloid leukemia	298
206	Monocytic leukemia	18
207	Other specified leukemia	16
208	Leukemia of unspecified cell type	142
211	Benign neoplasm of other parts of digestive system	1
212	Benign neoplasm of respiratory and intrathoracic organs	7
215	Other benign neoplasm of connective and other soft tissue	2
216	Benign neoplasm of skin	1
220	Benign neoplasm of ovary	2
223	Benign neoplasm of kidney and other urinary organs	1
225	Benign neoplasm of brain and other parts of nervous system	33
227	Benign neoplasm of other endocrine glands and related structures	9
228	Hemangioma and lymphangioma, any site	4
229	Benign neoplasm of other and unspecified sites	2
235	Neoplasm of uncertain behavior of digestive and respiratory systems	3
237	Neoplasm of uncertain behavior of endocrine glands and nervous system	6
238	Neoplasm of uncertain behavior of other and unspecified sites and tissues	49
239	Neoplasm of unspecified nature	63
	III. ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES AND IMMUNITY DISORDERS (240-279)	
240	Simple and unspecified goitre	3
241	Nontoxic nodular goitre	2
242	Thyrotoxicosis with or without goitre	7
244	Acquired hypothyroidism	28
250	Diabetes mellitus	1347
251	Other disorders of pancreatic internal secretion	7
252	Disorders of parathyroid gland	2
253	Disorders of the pituitary gland and its hypothalamic control	7
254	Diseases of thymus gland	1
255	Disorders of adrenal glands	9
259	Other endocrine disorders	6
261	Nurtritional marasmus	11
262	Other severe protein-calorie malnutrition	1
263	Other and unspecified protein-calorie malnutrition	88
269	Other nutritional deficiencies	2
270	Disorders of amino-acid transport and metabolism	1
271	Disorders of carbohydrate transport and metabolism	1
272	Disorders of lipoid metabolism	11
273	Disorders of plasma protein metabolism	17
274	Gout	5
275	Disorders of mineral metabolism	8
276	Disorders of fluid, electrolyte and acid-base balance	146
277	Other and unspecified disorders of metabolism	41
278	Obesity and other hyperalimentation	51
279	Disorders involving the immune mechanism	7
	IV. DISEASES OF BLOOD AND BLOOD-FORMING ORGANS (280-289)	
280	Iron deficiency anemias	3
281	Other deficiency anemias	8
282	Hereditary hemolytic anemias	22
283	Acquired hemolytic anemias	5
284	Aplastic anemia	56
285	Other and unspecified anemias	45
286	Coagulation defects	41
287	Purpura and other hemorrhagic conditons	32
288	Diseases of white blood cells	17
289	Other diseases of blood and blood-forming organs	44
	V. MENTAL DISORDERS (290-319)	
290	Senile and presenile organic psychotic conditions	45
291	Alcoholic psychoses	16
294	Other organic psychotic conditions (chronic)	1
295	Schizophrenic psychoses	5
296	Affective psychoses	1
298	Other nonorganic psychoses	11
300	Neurotic disorders	3
303	Alcohol dependence syndrome	123
304	Drug dependence	16
305	Nondependent abuse of drugs	244
306	Physiological malfunction arising from mental factors	2
307	Special symptoms or syndromes not elsewhere classified	2

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1982 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
308	Acute reaction to stress	3
310	Specific nonpsychotic mental disorders following organic brain damage	140
311	Depressive disorder, not elsewhere classified	7
318	Other specified mental retardation	6
319	Unspecified mental retardation	3
	VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS (320-389)	
320	Bacterial meningitis	28
322	Meningitis of unspecified cause	17
323	Encephalitis, myelitis and encephalomyelitis	12
324	Intracranial and intraspinal abscess	11
325	Phlebitis and thrombophlebitis of intracranial venous sinuses	3
326	Late effects of intracranial abscess or pyogenic infection	1
330	Cerebral degenerations usually manifest in childhood	11
331	Other cerebral degenerations	103
332	Parkinson's disease	132
333	Other extrapyramidal disease and abnormal movement disorders	19
334	Spinocerebellar disease	13
335	Anterior horn cell disease	119
336	Other diseases of spinal cord	7
340	Multiple sclerosis	65
341	Other demyelinating diseases of central nervous system	4
342	Hemiplegia	19
343	Infantile cerebral palsy	25
344	Other paralytic syndromes	20
345	Epilepsy	106
348	Other conditions of brain	121
349	Other and unspecified disorders of the nervous system	10
352	Disorders of other cranial nerves	1
355	Mononeuritis of lower limb	2
356	Hereditary and idiopathic peripheral neuropathy	2
357	Inflammatory and toxic neuropathy	6
358	Myoneural disorders	4
359	Muscular dystrophies and other myopathies	41
369	Blindness and low vision	1
382	Suppurative and unspecified otitis media	2
383	Mastoiditis and related conditions	1
	VII. DISEASES OF THE CIRCULATORY SYSTEM (390-459)	
391	Rheumatic fever with heart involvement	3
393	Chronic rheumatic pericarditis	1
394	Diseases of mitral valve	100
395	Diseases of aortic valve	12
396	Diseases of mitral and aortic valves	36
397	Diseases of other endocardial structures	24
398	Other rheumatic heart disease	86
401	Essential hypertension	111
402	Hypertensive heart disease	666
403	Hypertensive renal disease	163
404	Hypertensive heart and renal disease	116
410	Acute myocardial infarction	12035
411	Other acute and subacute form of ischemic heart disease	76
412	Old myocardial infarction	51
413	Angina pectoris	18
414	Other forms of chronic ischemic heart disease	10155
415	Acute pulmonary heart disease	353
416	Chronic pulmonary heart disease	71
417	Other diseases of pulmonary circulation	2
421	Acute and subacute endocarditis	36
422	Acute myocarditis	6
423	Other diseases of pericardium	19
424	Other diseases of endocardium	272
425	Cardiomyopathy	422
426	Conduction disorders	17
427	Cardiac dysrhythmias	1154
428	Heart failure	1065
429	Ill-defined descriptions and complications of heart disease	3303
430	Subarachnoid hemorrhage	237
431	Intracerebral hemorrhage	626
432	Other and unspecified intracranial hemorrhage	81
433	Occlusion and stenosis of precerebral arteries	71
434	Occlusion of cerebral arteries	1268
435	Transcient cerebral ischemia	18
436	Acute but ill-defined cerebrovascular disease	2805
437	Other and ill-defined cerebrovascular disease	455
438	Late effects of cerebrovascular disease	278
440	Atherosclerosis	1284
441	Aortic aneurysm	545
442	Other aneurysm	26
443	Other peripheral vascular disease	84
444	Arterial embolism and thrombosis	54
446	Polyarteritis nodosa and allied conditions	25
447	Other disorders of arteries and arterioles	56
448	Diseases of capillaries	2
451	Phlebitis and thrombophlebitis	63
452	Portal vein thrombosis	1
453	Other venous embolism and thrombosis	16
454	Varicose veins of lower extremities	9
456	Varicose veins of other sites	14
458	Hypotension	41
459	Other disorders of circulatory system	20
	VIII. DISEASES OF THE RESPIRATORY SYSTEM (460-519)	
460	Acute nasopharyngitis [common cold]	1
464	Acute laryngitis and tracheitis	5
465	Acute upper respiratory infections of multiple or unspecified sites	8
466	Acute bronchitis and bronchiolitis	13
473	Chronic sinusitis	2
475	Peritonsillar abscess	1
478	Other diseases of upper respiratory tract	10
480	Viral pneumonia	20
481	Pneumococcal pneumonia	81
482	Other bacterial pneumonia	59
483	Pneumonia due to other specified organism	5
485	Bronchopneumonia, organism unspecified	224
486	Pneumonia, organism unspecified	1276
487	Influenza	36
490	Bronchitis, not specified as acute or chronic	17
491	Chronic bronchitis	110
492	Emphysema	496
493	Asthma	132
494	Bronchiectasis	11
496	Chronic airways obstruction, not elsewhere classified	1439
500	Coalworkers' pneumoconiosis	10
501	Asbestosis	3
502	Pneumoconiosis due to other silica or silicates	8
505	Pneumoconiosis, unspecified	4
506	Respiratory conditions due to chemical fumes and vapors	1
507	Pneumonitis due to solids and liquids	151
508	Respiratory conditions due to other and unspecified external agents	2
510	Empyema	21
511	Pleurisy	25
512	Pneumothorax	12
513	Abscess of lung and mediastinum	43
514	Pulmonary congestion and hypostasis	20
515	Postinflammatory pulmonary fibrosis	130
516	Other alveolar and parietoalveolar pneumonopathy	51
518	Other diseases of lung	181
519	Other diseases of respiratory system	27
	IX. DISEASES OF THE DIGESTIVE SYSTEM (520-579)	
522	Diseases of pulp and periapical tissues	1
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	2
530	Diseases of esophagus	57
531	Gastric ulcer	98
532	Duodenal ulcer	88
533	Peptic ulcer, site unspecified	93
534	Gastrojejunal ulcer	1
535	Gastritis and duodenitis	32
536	Disorders of function of stomach	4
537	Other disorders of stomach and duodenum	20
540	Acute appendicitis	11
550	Inguinal hernia	14
551	Other hernia of abdominal cavity, with gangrene	5
552	Other hernia of abdominal cavity with obstruction, without mention of gangrene	17
553	Other hernia of abdominal cavity without mention of obstruction or gangrene	14
555	Regional enteritis	19
556	Idiopathic proctocolitis	10
557	Vascular insufficiency of intestine	205
558	Other noninfective gastroenteritis and colitis	30
560	Intestinal obstruction without mention of hernia	146
562	Diverticula of intestine	116
564	Functional digestive disorders, not elsewhere classified	3
565	Anal fissure and fistula	1
566	Abscess of anal and rectal regions	6
567	Peritonitis	55
568	Other disorders of peritoneum	11
569	Other disorders of intestine	69
570	Acute and subacute necrosis of liver	25
571	Chronic liver disease and cirrhosis	1244
572	Liver abscess and sequelae of chronic liver disease	133
573	Other disorders of liver	39
574	Cholelithiasis	50
575	Other disorders of gallbladder	46
576	Other disorders of biliary tract	45
577	Diseases of pancreas	103
578	Gastrointestinal hemorrhage	172
579	Intestinal malabsorption	3
	X. DISEASES OF THE GENITOURINARY SYSTEM (580-629)	
580	Acute glomerulonephritis	2

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1982 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
581	Nephrotic syndrome	6
582	Chronic glomerulonephritis	40
583	Nephritis and nephropathy, not specified as acute or chronic	18
584	Acute renal failure	110
585	Chronic renal failure	180
586	Renal failure, unspecified	347
587	Renal sclerosis, unspecified	4
588	Disorders resulting from impaired renal function	2
590	Infections of kidney	61
591	Hydronephrosis	3
592	Calculus of kidney and ureter	12
593	Other disorders of kidney and ureter	43
595	Cystitis	10
596	Other disorders of bladder	10
597	Urethritis, not sexually transmitted, and urethral syndrome	1
599	Other disorders of urethra and urinary tract	206
600	Hyperplasia of prostate	13
602	Other disorders of prostate	3
608	Other disorders of male genital organs	1
614	Inflammatory disease of ovary, fallopian tube, pelvic cellular tissue and peritoneum	3
618	Genital prolapse	2
619	Fistulae involving female genital tract	1
620	Noninflammatory disorders of ovary, fallopian tube and broad ligament	2
626	Disorders of menstruation and other abnormal bleeding from female genital tract	1
	XI. COMPLICATIONS OF PREGNANCY, CHILDBIRTH, AND THE PUERPERIUM (630-676)	
633	Ectopic pregnancy	3
634	Spontaneous abortion	1
635	Legally induced abortion	1
648	Other current conditions in the mother classifiable elsewhere, but complicating pregnancy, childbirth and the puerperium	1
666	Postpartum hemorrhage	1
669	Other complications of labor and delivery, not elsewhere classified	1
671	Venous complications in pregnancy and the puerperium	1
[illegible]73	Obstetrical pulmonary embolism	1
[illegible]4	Other and unspecified complications of the puerperium, not elsewhere classified	1
	XII. DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (680-709)	
682	Other cellulitis and abscess	21
686	Other local infections of skin and subcutaneous tissue	2
692	Contact dermatitis and other eczema	2
694	Bullous dermatoses	2
695	Erythematous conditions	6
696	Psoriasis and similar disorders	1
707	Chronic ulcer of skin	71
709	Other disorders of skin and subcutaneous tissue	2
	XIII. DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE (710-739)	
710	Diffuse diseases of connective tissue	81
711	Arthropathy associated with infections	2
714	Rheumatoid arthritis and other inflammatory polyarthropathies	72
715	Osteoarthrosis and allied disorders	11
716	Other and unspecified arthropathies	6
720	Ankylosing spondylitis and other inflammatory spondylopathies	3
721	Spondylosis and allied disorders	1
725	Polymyalgia rheumatica	1
728	Disorders of muscle, ligament and fascia	4
729	Other disorders of soft tissues	7
730	Osteomyelitis, periostitis and other infections involving bone	9
731	Osteitis deformans and osteopathies associated with other disorders classified elsewhere	2
732	Osteochondropathies	1
733	Other disorders of bone and cartilage	11
737	Curvature of spine	13
738	Other acquired deformity	1
	XIV. CONGENITAL ANOMALIES (740-759)	
740	Anencephalus and similar anomalies	38
741	Spina bifida	6
742	Other congenital anomalies of nervous system	56
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	49
746	Other congenital anomalies of heart	108
747	Other congenital anomalies of circulatory system	50
748	Congenital anomalies of respiratory system	30
[illegible]9	Cleft palate and cleft lip	1
[illegible]0	Other congenital anomalies of upper alimentary tract	3
751	Other congenital anomalies of digestive system	13
752	Congenital anomalies of genital organs	1
753	Congenital anomalies of urinary system	32
756	Other congenital musculoskeletal anomalies	32
757	Congenital anomalies of the integument	1
758	Chromosomal anomalies	37
759	Other and unspecified congenital anomalies	31
	XV. CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (760-779)	
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	11
761	Fetus or newborn affected by maternal complications of pregnancy	83
762	Fetus or newborn affected by complications of placenta, cord and membranes	45
763	Fetus or newborn affected by other complications of labor and delivery	3
764	Slow fetal growth and fetal malnutrition	8
765	Disorders relating to short gestation and unspecified low birthweight	137
767	Birth trauma	33
768	Intrauterine hypoxia and birth asphyxia	47
769	Respiratory distress syndrome	229
770	Other respiratory conditions of fetus and newborn	148
771	Infections specific to the perinatal period	28
772	Fetal and neonatal hemorrhage	23
773	Hemolytic disease of fetus or newborn, due to isoimmunization	1
774	Other perinatal jaundice	1
775	Endocrine and metabolic disturbances specific to the fetus and newborn	3
776	Hematological disorders of fetus and newborn	4
777	Perinatal disorders of digestive system	13
778	Conditions involving the integument and temperature regulation of fetus and newborn	6
779	Other and ill-defined conditions originating in the perinatal period	142
	XVI. SYMPTOMS, SIGNS AND ILL-DEFINED CONDITIONS (780-799)	
780	General symptoms	3
782	Symptoms involving skin and other integumentary tissue	1
783	Symptoms concerning nutrition, metabolism and development	1
785	Symptoms involving cardiovascular system	16
786	Symptoms involving respiratory system and other chest symptoms	15
789	Other symptoms involving abdomen and pelvis	1
790	Nonspecific findings on examination of blood	1
797	Senility without mention of psychosis	28
798	Sudden death, cause unknown	182
799	Other ill-defined and unknown causes of morbidity and mortality	82
	EXVII. EXTERNAL CAUSES OF INJURY AND POISONING (E800-E999)	
E804	Fall in, on or from railway train	1
E805	Hit by rolling stock	14
E810	Motor vehicle traffic accident involving collision with train	28
E811	Motor vehicle traffic accident involving re-entrant collision with another motor vehicle	2
E812	Other motor vehicle traffic accident involving collision with another motor vehicle	613
E813	Motor vehicle traffic accident involving collision with other vehicle	46
E814	Motor vehicle traffic accident involving collision with pedestrian	248
E815	Other motor vehicle traffic accident involving collision on the highway	181
E816	Motor vehicle traffic accident due to loss of control, without collision on the highway	274
E817	Noncollision motor vehicle traffic accident while boarding or alighting	1
E818	Other noncollision motor vehicle traffic accident	24
E819	Motor vehicle traffic accident of unspecified nature	89
E820	Nontraffic accident involving motor-driven snow vehicle	7
E821	Nontraffic accident involving other off-road motor vehicle	8
E822	Other motor vehicle nontraffic accident involving collision with moving object	22
E823	Other motor vehicle nontraffic accident involving collision with stationary object	3
E825	Other motor vehicle nontraffic accident of other and unspecified nature	9
E826	Pedal cycle accident	5
E828	Accident involving animal being ridden	2
E830	Accident to watercraft causing submersion	12
E831	Accident to watercraft causing other injury	1
E832	Other accidental submersion or drowning in water transport accident	26
E838	Other and unspecified water transport accident	2

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1982 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
E840	Accident to powered aircraft at takeoff or landing	2
E841	Accident to powered aircraft, other and unspecified	24
E848	Accidents involving other vehicles not elsewhere classifiable	1
E850	Accidental poisoning by analgesics, antipyretics, antirheumatics	13
E852	Accidental poisoning by other sedatives and hypnotics	1
E853	Accidental poisoning by tranquillizers	2
E854	Accidental poisoning by other psychotropic agents	2
E855	Accidental poisoning by other drugs acting on central and autonomic nervous systems	3
E856	Accidental poisoning by antibiotics	2
E858	Accidental poisoning by other drugs	63
E860	Accidental poisoning by alcohol, not elsewhere classified	6
E861	Accidental poisoning by cleansing and polishing agents, disinfectants, paints and varnishes	2
E862	Accidental poisoning by petroleum products, other solvents and their vapors, not elsewhere classified	4
E864	Accidental poisoning by corrosives and caustics, not elsewhere classified	1
E866	Accidental poisoning by other and unspecified solid and liquid substances	1
E867	Accidental poisoning by gas distributed by pipeline	4
E868	Accidental poisoning by other utility gas and other carbon monoxide	67
E869	Accidental poisoning by other gases and vapors	5
E870	Accidental cut, puncture, perforation or hemorrhage during medical care	7
E878	Surgical operation and other surgical procedures as the cause of abnormal reaction of patient, or of later complication, without mention of misadventure at the time of operation	26
E879	Other procedures, without mention of misadventure at the time of procedure, as the cause of abnormal reaction of patient, or of later complication	8
E880	Fall on or from stairs or steps	53
E881	Fall on or from ladders or scaffolding	11
E882	Fall from or out of building or other structure	20
E883	Fall into hole or other opening in surface	6
E884	Other fall from one level to another	27
E885	Fall on same level from slipping, tripping or stumbling	6
E887	Fracture, cause unspecified	116
E888	Other and unspecified fall	189
E890	Conflagration in private dwelling	174
E891	Conflagration in other and unspecified building or structure	3
E893	Accident caused by ignition of clothing	6
E894	Ignition of highly inflammable material	3
E895	Accident caused by controlled fire in private dwelling	1
E897	Accident caused by controlled fire not in building or structure	1
E898	Accident caused by other specified fire and flames	7
E899	Accident caused by unspecified fire	5
E900	Excessive heat	6
E901	Excessive cold	30
E904	Hunger, thirst, exposure, neglect	11
E905	Venomous animals and plants as the cause of poisoning and toxic reactions	2
E906	Other injury caused by animals	3
E907	Lightning	4
E908	Cataclysmic storms, and floods resulting from storms	2
E909	Cataclysmic earth surface movements and eruptions	1
E910	Accidental drowning and submersion	163
E911	Inhalation and ingestion of food causing obstruction of respiratory tract or suffocation	85
E912	Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation	60
E913	Accidental mechanical suffocation	22
E915	Foreign body accidentally entering other orifice	2
E916	Struck accidentally by falling object	34
E917	Striking against or struck accidentally by objects or persons	6
E918	Caught accidentally in or between objects	4
E919	Accidents caused by machinery	37
E920	Accidents caused by cutting and piercing instruments or objects	2
E921	Accident caused by explosion of pressure vessel	2
E922	Accident caused by firearm missile	34
E923	Accident caused by explosive material	10
E924	Accident caused by hot substance or object, caustic or corrosive material and steam	3
E925	Accident caused by electric current	23
E928	Other and unspecified environmental and accidental causes	45
E929	Late effects of accidental injury	20
E934	Agents primarily affecting blood constituents	1
E936	Anticonvulsants and anti-Parkinsonism drugs	1
E947	Other and unspecified drugs and medicaments	10
E950	Suicide and selfinflicted poisoning by solid or liquid substances	105
E951	Suicide and selfinflicted poisoning by gases in domestic use	2
E952	Suicide and selfinflicted poisoning by other gases and vapors	174
E953	Suicide and selfinflicted injury by hanging, strangulation and suffocation	196
E954	Suicide and selfinflicted injury by submersion (drowning)	19
E955	Suicide and selfinflicted injury by firearms and explosives	555
E956	Suicide and selfinflicted injury by cutting and piercing instruments	9
E957	Suicide and selfinflicted injuries by jumping from high place	21
E958	Suicide and selfinflicted injury by other and unspecified means	22
E960	Fight, brawl, rape	3
E962	Assault by poisoning	1
E963	Assault by hanging and strangulation	46
E964	Assault by submersion [drowning]	2
E965	Assault by firearms and explosives	598
E966	Assault by cutting and piercing instrument	161
E967	Child battering and other maltreatment	10
E968	Assault by other and unspecified means	103
E969	Late effects of injury purposely inflicted by other person	3
E970	Injury due to legal intervention by firearms	9
E980	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted	36
E982	Poisoning by other gases, undetermined whether accidentally or purposely inflicted	8
E983	Hanging, strangulation or suffocation, undetermined whether accidentally or purposely inflicted	2
E984	Submersion [drowning], undetermined whether accidentally or purposely inflicted	9
E985	Injury by firearms and explosives, undetermined whether accidentally or purposely inflicted	5
E987	Falling from high place, undetermined whether accidentally or purposely inflicted	1
E988	Injury by other and unspecified means, undetermined whether accidentally or purposely inflicted	23
E989	Late effects of injury, undetermined whether accidentally or purposely inflicted	1
E999	Late effects of injury due to war operations	1

Table 4.17
Population by Age, Race, and Sex, Michigan Residents, 1982

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	140409	71565	68844	112215	57442	54773	28194	14124	14071
1-4	507517	259835	247682	401063	206200	194863	106454	53636	52818
5-9	671271	343910	327361	519112	267389	251723	152159	76522	75637
10-14	749531	383433	366098	602751	309458	293294	146779	73975	72804
15-19	895789	453450	442339	748602	380354	368247	147187	73095	74092
20-24	927173	461793	465380	779132	391353	387779	148042	70440	77601
25-29	845905	418611	427294	705603	353725	351878	140302	64886	75416
30-34	750159	369061	381098	630058	313514	316544	120101	55547	64555
35-39	577929	285110	292819	494462	245568	248894	83467	39542	43925
40-44	443392	216263	227129	382551	188258	194293	60841	28005	32836
45-49	419906	202801	217105	361855	176678	185177	58051	26123	31928
50-54	480636	234389	246247	418776	205698	213078	61860	28691	33169
55-59	479107	228353	250754	421378	201014	220364	57729	27339	30390
60-64	401416	186421	214995	356236	165745	190491	45180	20676	24504
65-69	328115	147047	181068	290838	130545	160293	37277	16502	20775
70-74	241895	101766	140129	216339	90660	125679	25556	11106	14450
75-79	172224	67005	105219	154775	59695	95081	17448	7310	10138
80-84	108046	37184	70862	98777	33604	65173	9269	3580	5689
85+	86904	26295	60609	80304	24144	56160	6601	2152	4449
Total	9227327	4494295	4733032	7774828	3801045	3973783	1452499	693250	759249

Source: The estimate of the total state population was provided by the Department of Management and Budget, Office of the Budget. The breakdown of the total population by age, race, and sex was prepared by the Department of Public Health, Office of the State Registrar and Center for Health Statistics. See Technical Notes.

Table 4.18
Population Changes by County, Michigan Residents, 1972-1982

AREA	POPULATION ESTIMATE JULY 1, 1972	POPULATION ESTIMATE JULY 1, 1982	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
State	9025000	9227327	202327	2.2	638767	-436440
Alcona	8100	9923	1823	22.5	-142	1965
Alger	8200	9018	818	10.0	297	521
Allegan	70500	83706	13206	18.7	6502	6704
Alpena	31700	32341	641	2.0	2109	-1468
Antrim	13600	16830	3230	23.7	660	2570
Arenac	12100	15225	3125	25.8	605	2520
Baraga	7800	8606	806	10.3	283	523
Barry	40300	46569	6269	15.6	2926	3343
Bay	119100	119642	542	0.5	9002	-8460
Benzie	8800	11005	2205	25.1	241	1964
Berrien	168100	167354	-746	-0.4	12840	-13586
Branch	39700	39747	47	0.1	2353	-2306
Calhoun	142000	141826	-174	-0.1	9095	-9269
Cass	44000	48237	4237	9.6	2963	1274
Charlevoix	17100	19658	2558	15.0	1177	1381
Cheboygan	17900	20993	3093	17.3	1021	2072
Chippewa	34500	29575	-4925	-14.3	2784	-7709
Clare	18200	24206	6006	33.0	599	5407
Clinton	48700	55364	6664	13.7	5025	1639
Crawford	6900	9545	2645	38.3	547	2098
Delta	37100	39693	2593	7.0	1989	604
Dickinson	24200	25511	1311	5.4	428	883
Eaton	72300	88870	16570	22.9	6344	10226
Emmet	19700	23837	4137	21.0	1149	2988
Genesee	448700	446610	-2090	-0.5	41634	-43724
Gladwin	14800	20535	5735	38.7	664	5071
Gogebic	20700	19613	-1087	-5.3	-598	-489
Gd. Traverse	42400	56607	14207	33.5	3779	10428
Gratiot	40000	39836	-164	-0.4	2807	-2971
Hillsdale	38900	41581	2681	6.9	2442	239
Houghton	36700	38366	1666	4.5	415	1251
Huron	35400	36554	1154	3.3	1565	-411
Ingham	265800	275046	9246	3.5	26744	-17498
Ionia	48000	52412	4412	9.2	4329	83
Iosco	27200	30089	2889	10.6	2833	56
Iron	13800	13480	-320	-2.3	-424	104
Isabella	48700	54547	5847	12.0	4052	1795
Jackson	144400	149790	5390	3.7	9303	-3913
Kalamazoo	202900	217609	14709	7.2	15970	-1261
Kalkaska	6000	11348	5348	89.1	828	4520
Kent	413700	455827	42127	10.2	39152	2975
Keweenaw	2200	2022	-178	-8.1	-102	-76
Lake	6500	8335	1835	28.2	-124	1959
Lapeer	55100	70242	15142	27.5	6196	8946

Table 4.18
Population Changes by County, Michigan Residents, 1972-1982 (Continued)

AREA	POPULATION ESTIMATE JULY 1, 1972	POPULATION ESTIMATE JULY 1, 1982	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
Leelanau	11600	14681	3081	26.6	425	2656
Lenawee	84000	89274	5274	6.3	6993	-1719
Livingston	63900	99595	35695	55.9	7186	28509
Luce	7500	6278	-1222	-16.3	302	-1524
Mackinac	10200	10175	-25	-0.2	322	-347
Macomb	634900	694166	59266	9.3	49917	9349
Manistee	21300	22464	1164	5.5	211	953
Marquette	68200	74959	6759	9.9	7729	-970
Mason	24600	26811	2211	9.0	1020	1191
Mecosta	30900	37604	6704	21.7	2132	4572
Menominee	24800	25872	1072	4.3	639	433
Midland	65300	73709	8409	12.9	6893	1516
Missaukee	7600	10364	2764	36.4	764	2000
Monroe	123400	131172	7772	6.3	10708	-2936
Montcalm	41800	49064	7264	17.4	3177	4087
Montmorency	5700	7376	1676	29.4	121	1555
Muskegon	158100	157045	-1055	-0.7	11445	-12500
Newaygo	29100	36363	7263	25.0	1998	5265
Oakland	919900	1012028	92128	10.0	66213	25915
Oceana	19400	21855	2455	12.7	1459	996
Ogemaw	12700	16406	3706	29.2	382	3324
Ontonagon	10800	10061	-739	-6.8	282	-1021
Osceola	16600	19429	2829	17.0	1138	1691
Oscoda	5200	7128	1928	37.1	41	1887
Otsego	11500	15090	3590	31.2	1230	2360
Ottawa	131200	159624	28424	21.7	15093	13331
Presque Isle	13300	14149	849	6.4	699	150
Roscommon	11500	17829	6329	55.0	-98	6427
Saginaw	224100	224726	626	0.3	20208	-19582
St. Clair	127200	138887	11687	9.2	8155	3532
St. Joseph	49700	57906	8206	16.5	4030	4176
Sanilac	37000	39843	2843	7.7	2019	824
Schoolcraft	8400	8419	19	0.2	207	-188
Shiawassee	65600	69665	4065	6.2	6385	-2320
Tuscola	50700	55886	5186	10.2	4226	960
Van Buren	60200	67355	7155	11.9	4683	2472
Washtenaw	241500	267849	26349	10.9	23803	2546
Wayne	2652500	2282298	-370202	-14.0	132870	-503072
Wexford	21000	26210	5210	24.8	1472	3738
County Not Stated	-	-	-	-	-74	74

Table 4.19
Abridged Life Table, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.01191	100000	1191	98932	7380239	73.8
1-5	0.00219	98809	216	394707	7281307	73.7
5-10	0.00121	98593	119	492638	6886600	69.8
10-15	0.00147	98474	144	492055	6393962	64.9
15-20	0.00343	98330	337	490871	5901907	60.0
20-25	0.00470	97993	460	488860	5411036	55.2
25-30	0.00583	97532	568	486285	4922176	50.5
30-35	0.00689	96964	667	483211	4435891	45.7
35-40	0.00879	96297	846	479518	3952680	41.0
40-45	0.01441	95451	1375	474059	3473162	36.4
45-50	0.02120	94076	1994	465738	2999103	31.9
50-55	0.03273	92082	3013	453378	2533365	27.5
55-60	0.04936	89069	4396	435126	2079987	23.4
60-65	0.07922	84673	6708	407638	1644861	19.4
65-70	0.12049	77966	9394	367447	1237223	15.9
70-75	0.17510	68572	12006	313894	869776	12.7
75-80	0.25524	56565	14438	247353	555882	9.8
80-85	0.35561	42128	14981	172794	308529	7.3
85+	1.00000	27147	27147	135735	135735	5.0

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.20
Abridged Life Table for Males, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.01371	100000	1371	98774	7040435	70.4
1-5	0.00236	98629	232	393972	6941661	70.4
5-10	0.00154	98397	152	491569	6547688	66.5
10-15	0.00179	98246	175	490856	6056119	61.6
15-20	0.00479	98070	469	489281	5565263	56.7
20-25	0.00687	97601	670	486400	5075982	52.0
25-30	0.00831	96931	805	482695	4589582	47.3
30-35	0.00958	96126	920	478395	4106887	42.7
35-40	0.01178	95206	1121	473393	3628492	38.1
40-45	0.01828	94085	1719	466415	3155099	33.5
45-50	0.02713	92366	2505	456006	2688684	29.1
50-55	0.04260	89861	3827	440361	2232677	24.8
55-60	0.06395	86034	5502	417361	1792316	20.8
60-65	0.10396	80532	8372	382982	1374955	17.1
65-70	0.15951	72160	11510	333218	991973	13.7
70-75	0.23245	60650	14098	268854	658755	10.9
75-80	0.33470	46552	15581	193756	389901	8.4
80-85	0.44700	30971	13844	119073	196145	6.3
85+	1.00000	17127	17127	77072	77072	4.5

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.21
Abridged Life Table for Females, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ēx(6)[1]
0-1	0.01004	100000	1004	99096	7718837	77.2
1-5	0.00202	98996	200	395471	7619741	77.0
5-10	0.00086	98797	84	493751	7224271	73.1
10-15	0.00114	98712	112	493306	6730520	68.2
15-20	0.00204	98600	200	492530	6237214	63.3
20-25	0.00255	98400	250	491401	5744684	58.4
25-30	0.00339	98150	333	489952	5253283	53.5
30-35	0.00427	97817	418	488091	4763331	48.7
35-40	0.00586	97400	571	485701	4275240	43.9
40-45	0.01072	96829	1037	481745	3789539	39.1
45-50	0.01564	95792	1498	475454	3307794	34.5
50-55	0.02324	94294	2191	466367	2832340	30.0
55-60	0.03589	92102	3305	452853	2365973	25.7
60-65	0.05727	88797	5085	432114	1913120	21.5
65-70	0.08760	83712	7333	401255	1481006	17.7
70-75	0.13104	76379	10008	358118	1079752	14.1
75-80	0.20029	66371	13293	299882	721634	10.9
80-85	0.30245	53078	16053	225520	421752	7.9
85+	1.00000	37025	37025	196232	196232	5.3

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.22
Abridged Life Table for Whites, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ēx(6)[1]
0-1	0.00990	100000	990	99118	7453587	74.5
1-5	0.00200	99010	197	395568	7354469	74.3
5-10	0.00122	98813	120	493734	6958902	70.4
10-15	0.00140	98693	137	493164	6465168	65.5
15-20	0.00334	98555	329	492015	5972004	60.6
20-25	0.00432	98227	423	490103	5479990	55.8
25-30	0.00475	97803	464	487873	4989887	51.0
30-35	0.00514	97339	500	485493	4502014	46.3
35-40	0.00711	96839	688	482621	4016521	41.5
40-45	0.01247	96151	1198	477995	3533899	36.8
45-50	0.01915	94953	1818	470554	3055904	32.2
50-55	0.03017	93135	2809	459143	2585350	27.8
55-60	0.04626	90326	4178	441951	2126207	23.5
60-65	0.07533	86148	6489	415604	1684257	19.6
65-70	0.11797	79659	9397	375969	1268652	15.9
70-75	0.17215	70262	12095	322232	892683	12.7
75-80	0.25741	58167	14972	254081	570451	9.8
80-85	0.35540	43194	15351	177155	316371	7.3
85+	1.00000	27843	27843	139216	139216	5.0

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.23
Abridged Life Table White Males, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.01137	100000	1137	98986	7123163	71.2
1-5	0.00216	98863	213	394964	7024176	71.0
5-10	0.00152	98651	149	492842	6629212	67.2
10-15	0.00170	98501	167	492153	6136370	62.3
15-20	0.00468	98334	459	490616	5644217	57.4
20-25	0.00627	97875	613	487881	5153601	52.7
25-30	0.00670	97262	651	484690	4665720	48.0
30-35	0.00682	96611	659	481457	4181029	43.3
35-40	0.00931	95952	893	477697	3699572	38.6
40-45	0.01551	95059	1474	471894	3221876	33.9
45-50	0.02413	93585	2258	462718	2749982	29.4
50-55	0.03912	91327	3573	448334	2287264	25.0
55-60	0.06015	87755	5278	426564	1838930	21.0
60-65	0.10062	82477	8299	392971	1412366	17.1
65-70	0.15742	74178	11677	342992	1019396	13.7
70-75	0.23215	62501	14509	277206	676403	10.8
75-80	0.34063	47992	16347	199020	399197	8.3
80-85	0.44766	31645	14166	121522	200177	6.3
85+	1.00000	17479	17479	78655	78655	4.5

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.24
Abridged Life Table for White Females, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.00836	100000	836	99256	7781362	77.8
1-5	0.00183	99164	181	396201	7682106	77.5
5-10	0.00090	98983	88	494671	7285905	73.6
10-15	0.00108	98894	106	494228	6791234	68.7
15-20	0.00196	98788	193	493484	6297006	63.7
20-25	0.00234	98595	230	492418	5803521	58.9
25-30	0.00279	98365	274	491166	5311103	54.0
30-35	0.00347	98092	340	489652	4819937	49.1
35-40	0.00494	97751	482	487674	4330286	44.3
40-45	0.00951	97269	925	484224	3842611	39.5
45-50	0.01438	96345	1385	478493	3358388	34.9
50-55	0.02145	94960	2036	470066	2879895	30.3
55-60	0.03342	92923	3105	457418	2409828	25.9
60-65	0.05280	89818	4742	438087	1952411	21.7
65-70	0.08462	85076	7199	408443	1514323	17.8
70-75	0.12627	77877	9833	366145	1105881	14.2
75-80	0.20045	68044	13639	307506	739735	10.9
80-85	0.30261	54405	16463	231137	432229	7.9
85+	1.00000	37942	37942	201093	201093	5.3

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.25
Abridged Life Table All Other, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.01990	100000	1990	98193	6985330	69.9
1-5	0.00293	98010	287	391297	6887138	70.3
5-10	0.00119	97724	116	488301	6495841	66.5
10-15	0.00178	97608	173	487664	6007540	61.5
15-20	0.00390	97435	380	486327	5519877	56.7
20-25	0.00674	97055	654	483789	5033550	51.9
25-30	0.01124	96402	1083	479482	4549760	47.2
30-35	0.01599	95318	1524	472921	4070278	42.7
35-40	0.01865	93795	1749	464793	3597357	38.4
40-45	0.02654	92046	2442	454393	3132564	34.0
45-50	0.03390	89604	3037	440816	2678171	29.9
50-55	0.04988	86566	4318	422633	2237355	25.8
55-60	0.07172	82248	5899	397336	1814722	22.1
60-65	0.10935	76350	8348	361632	1417386	18.6
65-70	0.13990	68002	9513	316917	1055754	15.5
70-75	0.19962	58488	11675	263572	738837	12.6
75-80	0.23586	46813	11041	206698	475265	10.2
80-85	0.35773	35772	12797	146796	268568	7.5
85+	1.00000	22976	22976	121772	121772	5.3

[1]Definitions of life table values are contained in the Technical Notes.

Table 4.26
Abridged Life Table for Other Males, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.02322	100000	2322	97913	6590713	65.9
1-5	0 00313	97678	305	389953	6492800	66.5
5-10	0.00164	97372	159	486424	6102847	62.7
10-15	0.00217	97213	210	485617	5616423	57.8
15-20	0.00540	97003	523	483869	5130806	52.9
20-25	0.01018	96480	982	480177	4646937	48.2
25-30	0.01705	95499	1628	473707	4166760	43.6
30-35	0.02499	93871	2346	463664	3693052	39.3
35-40	0.02696	91525	2467	451649	3229389	35.3
40-45	0.03666	89058	3265	437456	2777740	31.2
45-50	0.04715	85793	4045	419316	2340284	27.3
50-55	0.06714	81748	5488	395631	1920967	23.5
55-60	0.09147	76260	6975	364600	1525337	20.0
60-65	0.13030	69285	9027	324611	1160736	16.8
65-70	0.17584	60258	10595	275349	836125	13.9
70-75	0.23488	49662	11664	219196	560776	11.3
75-80	0.28464	37998	10816	163014	341580	9.0
80-85	0.44036	27182	11970	105547	178567	6.6
85+	1.00000	15212	15212	73019	73019	4.8

[1]Definitions of life table values are contained in the Technical Notes.

Table 4.27
Abridged Life Table for Other Females, Michigan Residents, 1982

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	$\hat{e}$x(6)[1]
0-1	0.01656	100000	1656	98474	7375949	73.8
1-5	0.00273	98344	268	392646	7277475	74.0
5-10	0.00073	98077	71	490188	6884829	70.2
10-15	0.00138	98005	135	489725	6394641	65.2
15-20	0.00243	97871	238	488806	5904916	60.3
20-25	0.00361	97633	352	487364	5416110	55.5
25-30	0.00622	97282	604	484989	4928746	50.7
30-35	0.00818	96677	791	481505	4443757	46.0
35-40	0.01110	95887	1064	476960	3962252	41.3
40-45	0.01782	94822	1689	470112	3485292	36.8
45-50	0.02293	93133	2135	460633	3015180	32.4
50-55	0.03471	90998	3158	447630	2554547	28.1
55-60	0.05360	87840	4708	428353	2106917	24.0
60-65	0.09131	83132	7591	397439	1678564	20.2
65-70	0.11032	75541	8333	357693	1281125	17.0
70-75	0.17147	67208	11524	307802	923432	13.7
75-80	0.19885	55684	11073	251132	615630	11.1
80-85	0.30059	44611	13409	189767	364498	8.2
85+	1.00000	31202	31202	174731	174731	5.6

[1] Definitions of life table values are contained in the Technical Notes.

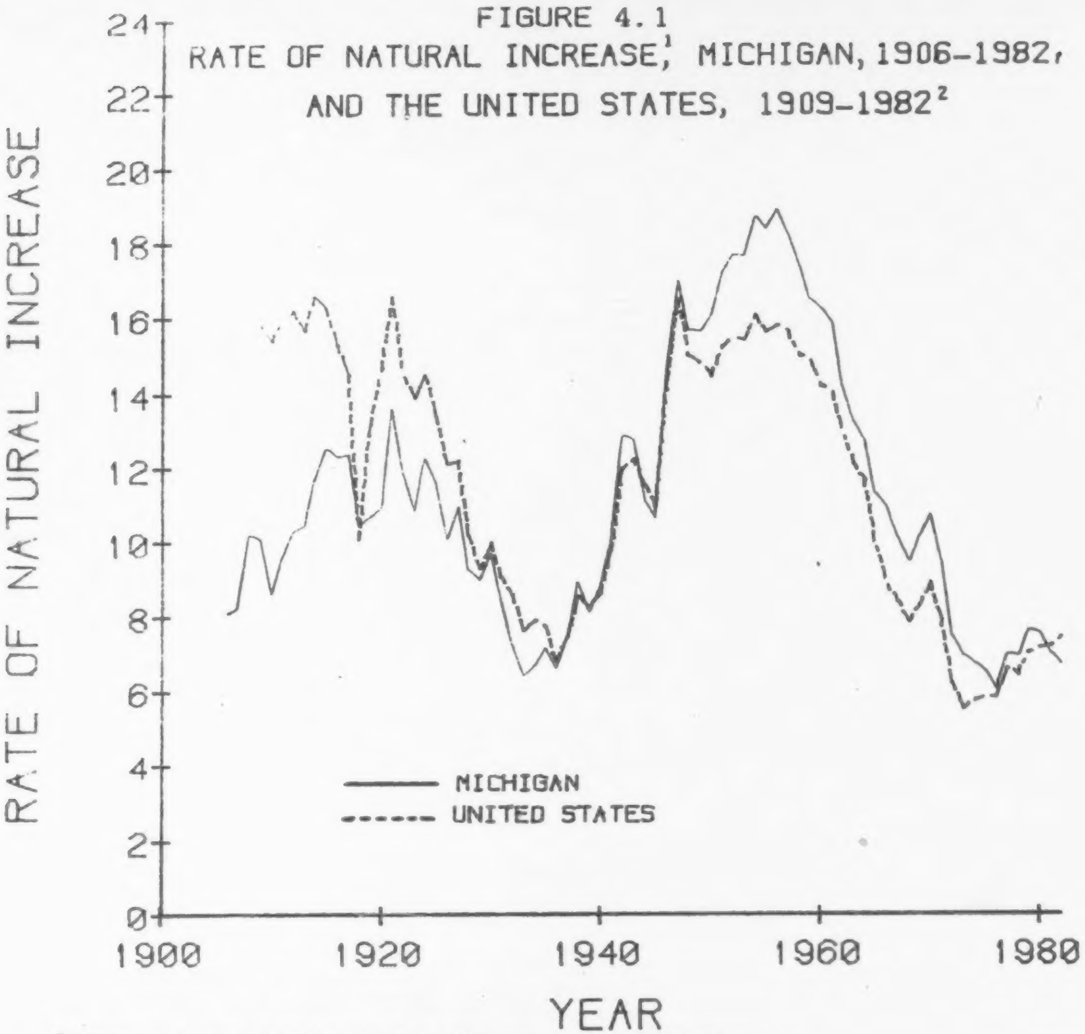


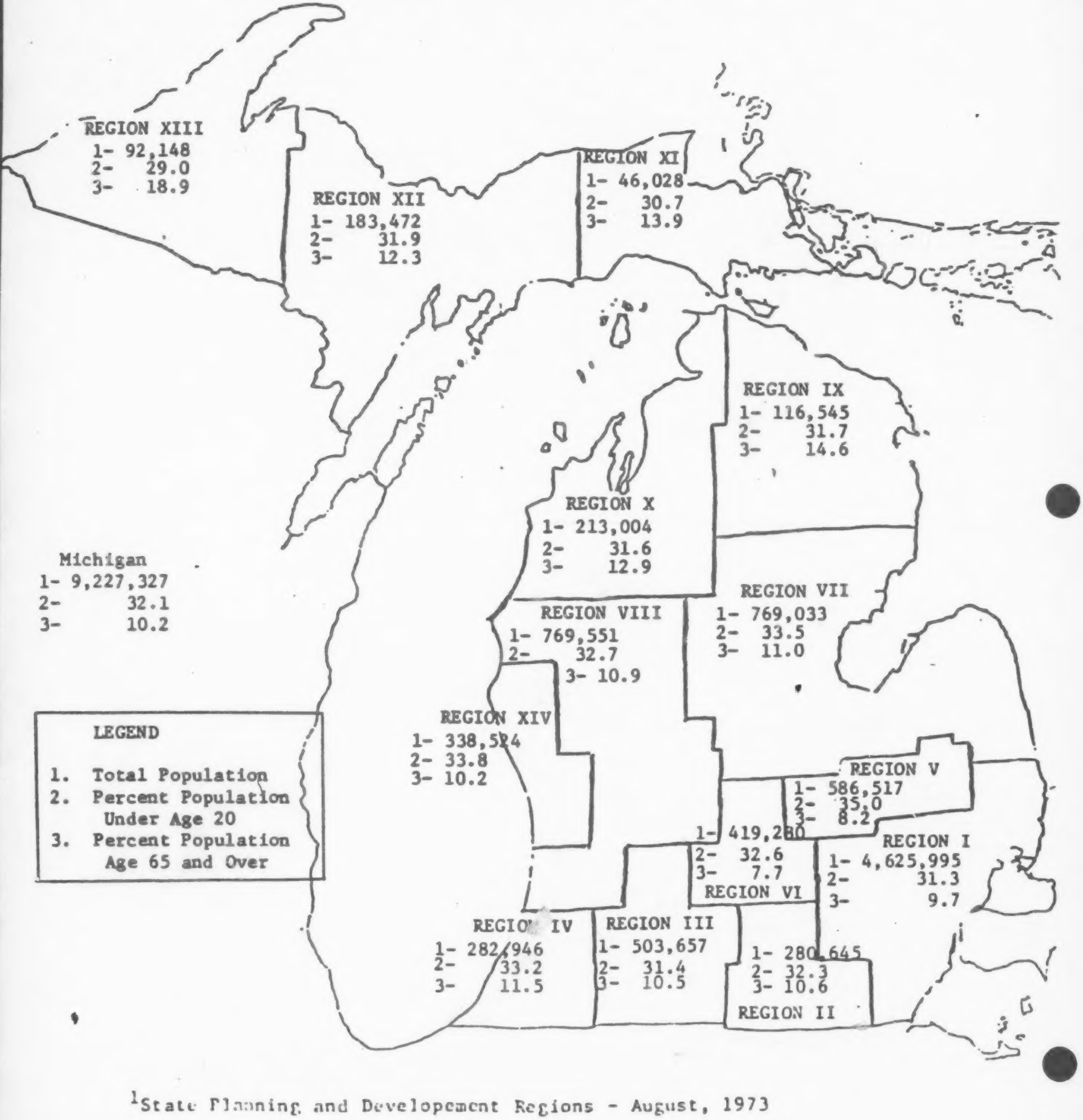
FIGURE 4.1
RATE OF NATURAL INCREASE[1] MICHIGAN, 1906-1982, AND THE UNITED STATES, 1909-1982[2]

---

[1] Excess of live births over deaths per 1,000 population.

[2] Rates for the United States for 1909-1932 are based on death rates for the death-registration states and estimated birth rates for the United States, adjusted for under-registration. For 1933-1959 rates are based on registered deaths in the United States and births adjusted for under-registration. After 1959 rates are based on registered births and deaths. The rates for 1981 and 1982 are provisional.

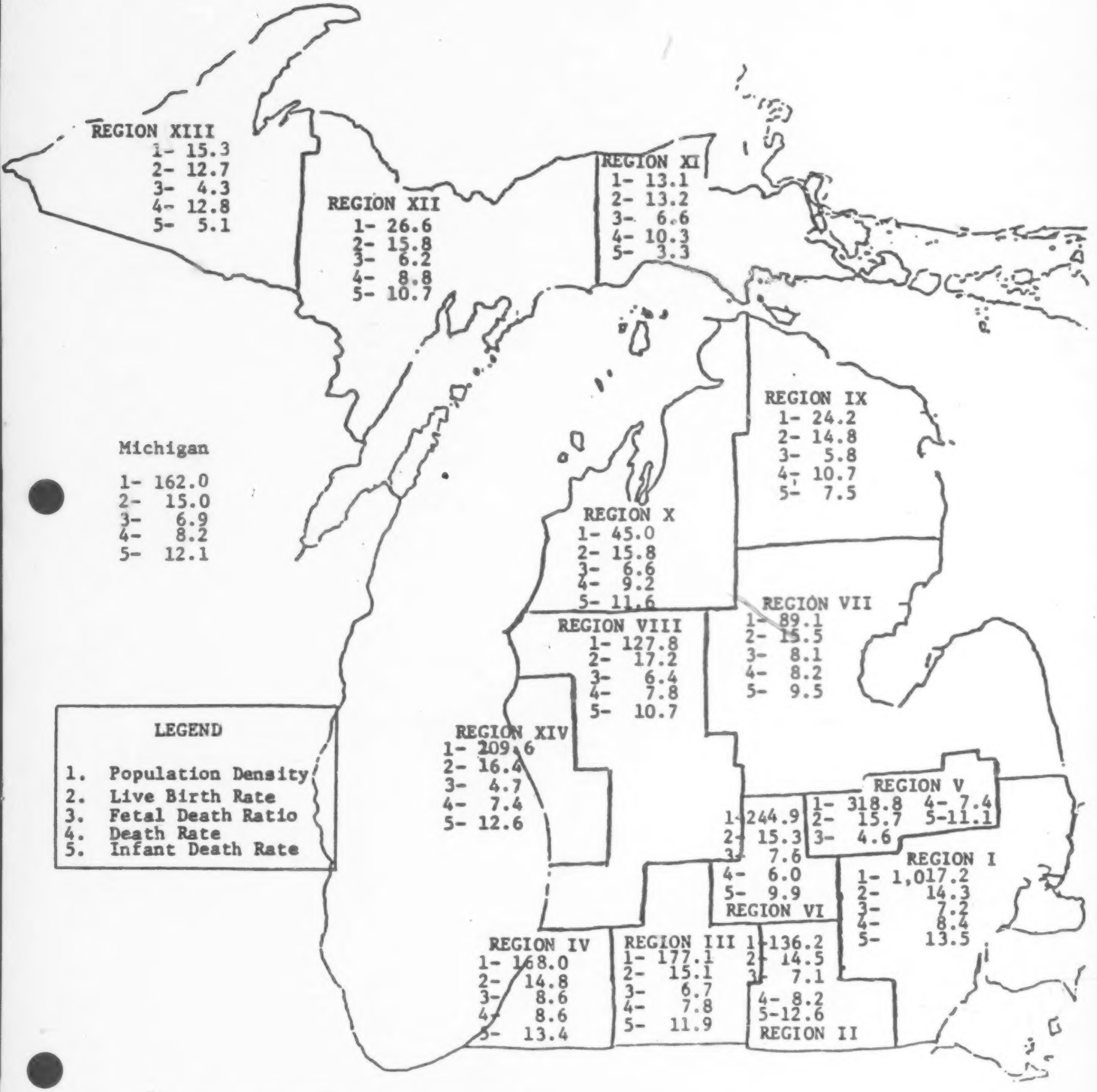
FIGURE 4.2 Total Population, Percent Under Age 20 and Percent Age 65 and over by Region, Michigan, 1982


REGION XIII
1- 92,148
2- 29.0
3- 18.9
REGION XII
1- 183,472
2- 31.9
3- 12.3
REGION XI
1- 46,028
2- 30.7
3- 13.9
REGION IX
1- 116,545
2- 31.7
3- 14.6
REGION X
1- 213,004
2- 31.6
3- 12.9
Michigan
1- 9,227,327
2- 32.1
3- 10.2
REGION VIII
1- 769,551
2- 32.7
3- 10.9
REGION VII
1- 769,033
2- 33.5
3- 11.0
REGION XIV
1- 338,524
2- 33.8
3- 10.2
LEGEND
1. Total Population
2. Percent Population Under Age 20
3. Percent Population Age 65 and Over
REGION V
1- 586,517
2- 35.0
3- 8.2
1- 419,280
2- 32.6
3- 7.7
REGION VI
REGION I
1- 4,625,995
2- 31.3
3- 9.7
REGION IV
1- 282,946
2- 33.2
3- 11.5
REGION III
1- 503,657
2- 31.4
3- 10.5
1- 280,645
2- 32.3
3- 10.6
REGION II

---

[1] State Planning and Developement Regions - August, 1973

FIGURE 4.3 Population Density[1], Live Birth Rates, Fetal Death Ratios, Death Rates and Infant Mortality Rates by Region[2], Michigan Residents, 1982

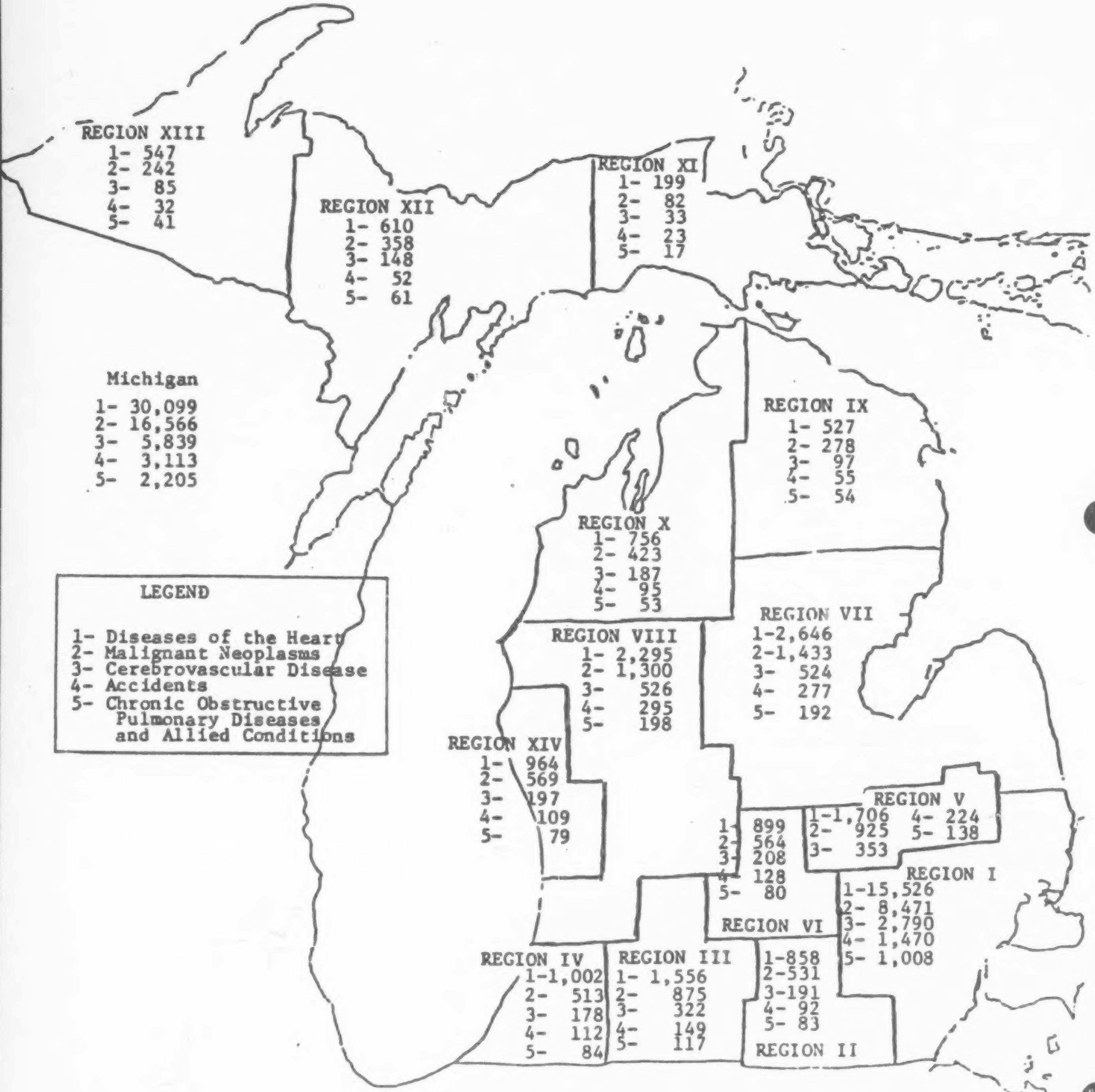

REGION XIII
1- 15.3
2- 12.7
3- 4.3
4- 12.8
5- 5.1
REGION XII
1- 26.6
2- 15.8
3- 6.2
4- 8.8
5- 10.7
REGION XI
1- 13.1
2- 13.2
3- 6.6
4- 10.3
5- 3.3
REGION IX
1- 24.2
2- 14.8
3- 5.8
4- 10.7
5- 7.5
Michigan
1- 162.0
2- 15.0
3- 6.9
4- 8.2
5- 12.1
REGION X
1- 45.0
2- 15.8
3- 6.6
4- 9.2
5- 11.6
REGION VIII
1- 127.8
2- 17.2
3- 6.4
4- 7.8
5- 10.7
REGION VII
1- 89.1
2- 15.5
3- 8.1
4- 8.2
5- 9.5
LEGEND
1. Population Density
2. Live Birth Rate
3. Fetal Death Ratio
4. Death Rate
5. Infant Death Rate
REGION XIV
1- 209.6
2- 16.4
3- 4.7
4- 7.4
5- 12.6
REGION V
1- 318.8 4- 7.4
2- 15.7 5-11.1
3- 4.6
1- 244.9
2- 15.3
3- 7.6
4- 6.0
5- 9.9
REGION VI
REGION I
1- 1,017.2
2- 14.3
3- 7.2
4- 8.4
5- 13.5
REGION IV
1- 168.0
2- 14.8
3- 8.6
4- 8.6
5- 13.4
REGION III
1- 177.1
2- 15.1
3- 6.7
4- 7.8
5- 11.9
1- 136.2
2- 14.5
3- 7.1
4- 8.2
5-12.6
REGION II

---

[1] Number of persons per square mile

[2] State Planning and Developement Regions - August, 1973

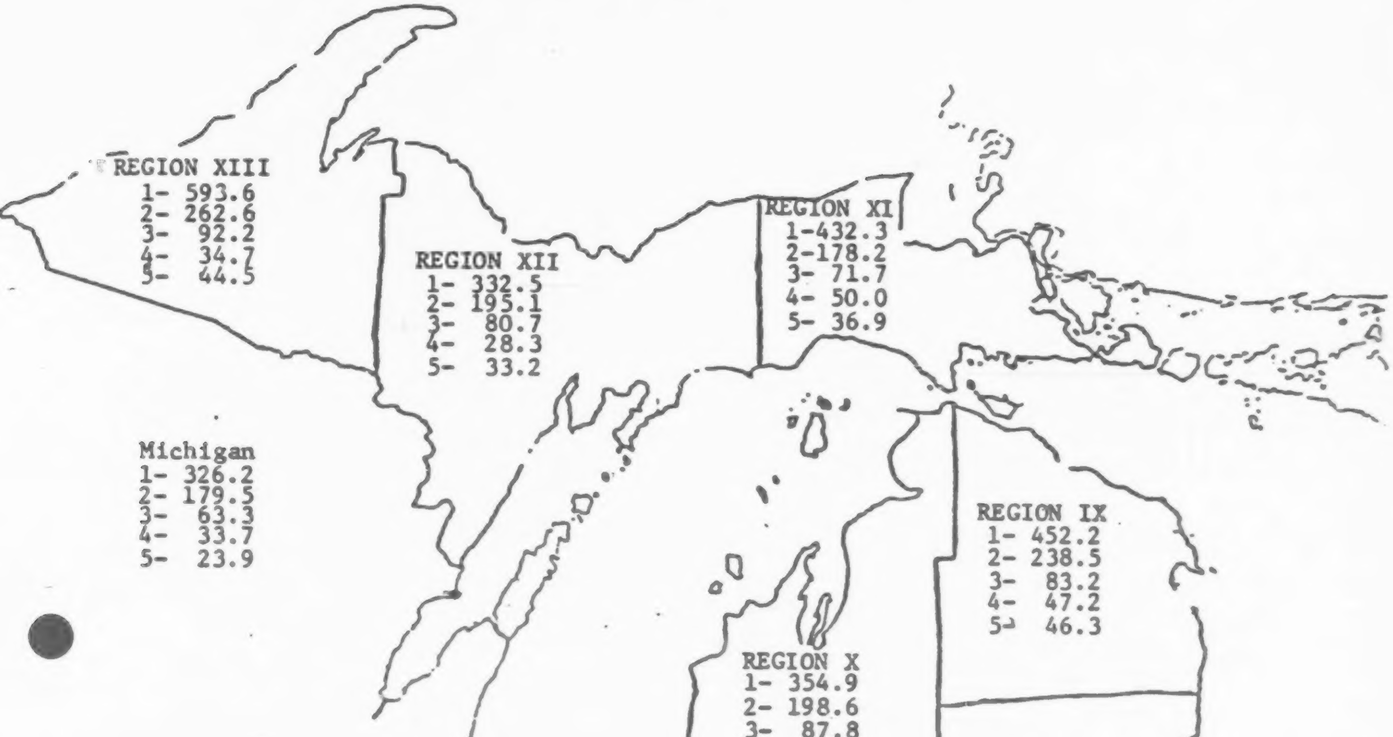
FIGURE 4.4 Leading Causes of Death: Number of Deaths by Region[1], Michigan Residents, 1982


REGION XIII
1- 547
2- 242
3- 85
4- 32
5- 41
REGION XII
1- 610
2- 358
3- 148
4- 52
5- 61
REGION XI
1- 199
2- 82
3- 33
4- 23
5- 17
Michigan
1- 30,099
2- 16,566
3- 5,839
4- 3,113
5- 2,205
REGION IX
1- 527
2- 278
3- 97
4- 55
5- 54
REGION X
1- 756
2- 423
3- 187
4- 95
5- 53
LEGEND
1- Diseases of the Heart
2- Malignant Neoplasms
3- Cerebrovascular Disease
4- Accidents
5- Chronic Obstructive Pulmonary Diseases and Allied Conditions
REGION VII
1-2,646
2-1,433
3- 524
4- 277
5- 192
REGION VIII
1- 2,295
2- 1,300
3- 526
4- 295
5- 198
REGION XIV
1- 964
2- 569
3- 197
4- 109
5- 79
REGION V
1-1,706
2- 925
3- 353
4- 224
5- 138
1- 899
2- 564
3- 208
4- 128
5- 80
REGION VI
REGION I
1-15,526
2- 8,471
3- 2,790
4- 1,470
5- 1,008
REGION IV
1-1,002
2- 513
3- 178
4- 112
5- 84
REGION III
1- 1,556
2- 875
3- 322
4- 149
5- 117
1-858
2-531
3-191
4- 92
5- 83
REGION II

---

[1] State Planning and Developement Regions - August, 1973

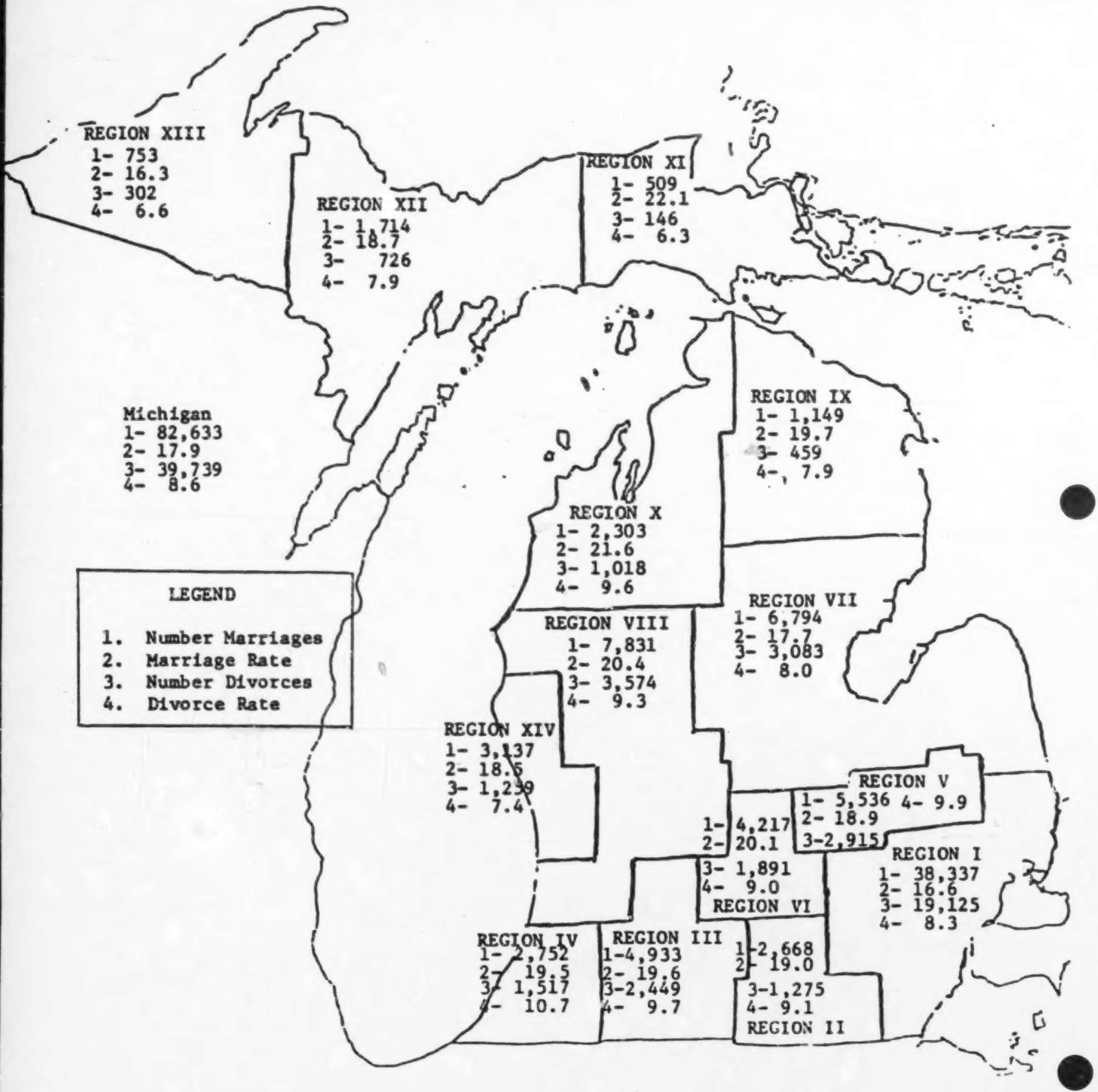
FIGURE 4.5 Leading Causes of Deaths; Death Rates by Region[1], Michigan Residents, 1982


REGION XIII
1- 593.6
2- 262.6
3- 92.2
4- 34.7
5- 44.5
REGION XII
1- 332.5
2- 195.1
3- 80.7
4- 28.3
5- 33.2
REGION XI
1-432.3
2-178.2
3- 71.7
4- 50.0
5- 36.9
Michigan
1- 326.2
2- 179.5
3- 63.3
4- 33.7
5- 23.9
REGION IX
1- 452.2
2- 238.5
3- 83.2
4- 47.2
5- 46.3
REGION X
1- 354.9
2- 198.6
3- 87.8
4- 44.6
5- 24.9
LEGEND
1- Diseases of the Heart
2- Malignant Neoplasms
3- Cerebrovascular Disease
4- Accidents
5- Chronic Obstructive Pulmonary Diseases and Allied Conditions
REGION VIII
1- 298.2
2- 168.9
3- 68.4
4- 38.3
5- 25.7
REGION VII
1-344.1
2-186.3
3- 68.1
4- 36.0
5- 25.0
REGION XIV
1- 284.8
2- 168.1
3- 58.2
4- 32.2
5- 23.3
REGION V
1-290.9
2-157.7
3- 60.2
4- 38.2
5- 23.5
1- 214.4
2- 134.5
3- 49.6
4- 30.5
5- 19.1
REGION VI
REGION I
1- 335.6
2- 183.1
3- 60.3
4- 31.8
5- 21.8
REGION IV
1- 354.1
2- 181.3
3- 62.9
4- 39.6
5- 29.7
REGION III
1-308.9
2-173.7
3- 63.9
4- 29.6
5- 23.2
1- 305.7
2- 189.2
3- 68.1
4- 32.8
5- 29.6
REGION II

---

[1] State Planning and Developement Regions - August, 1973

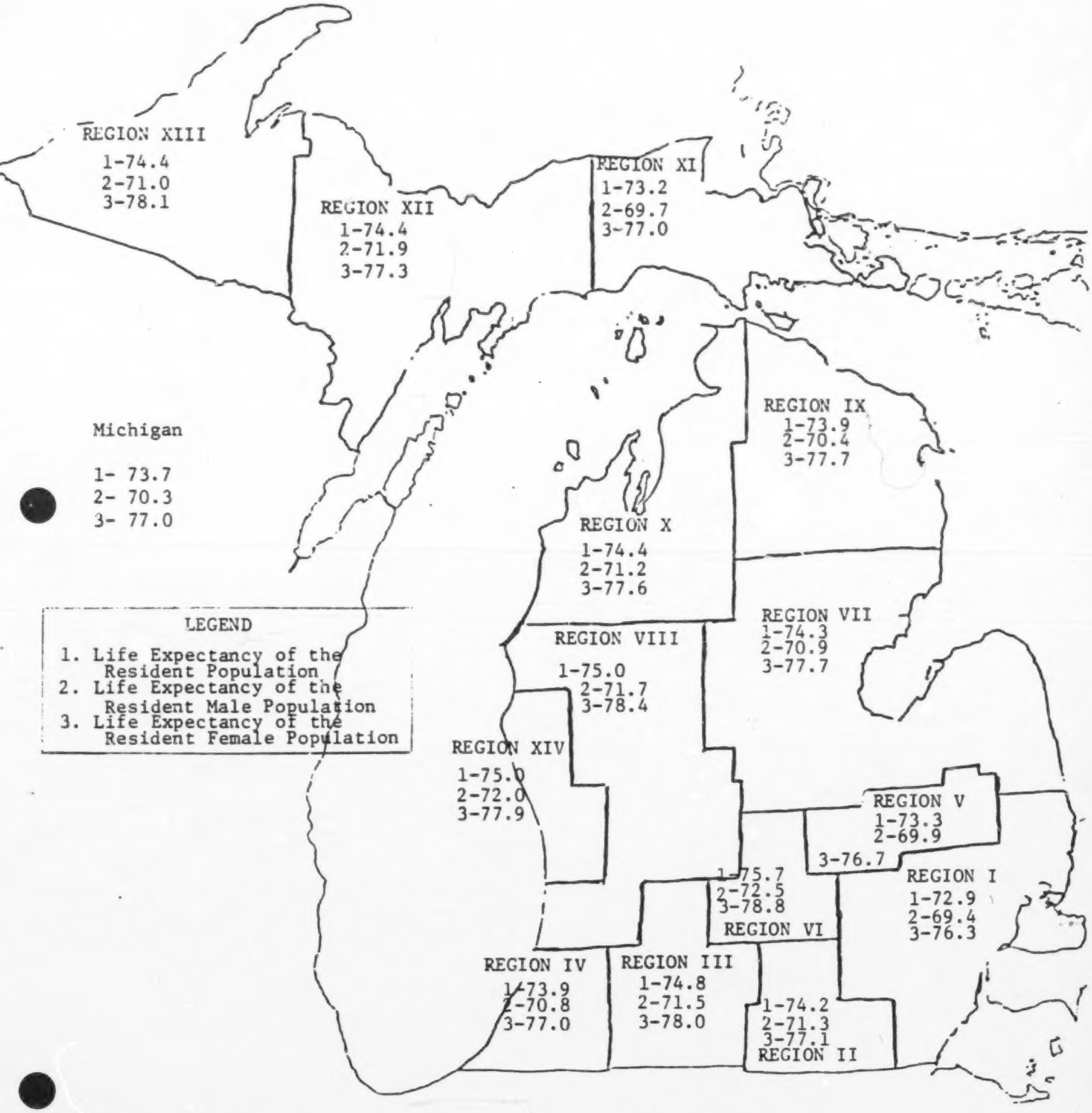
FIGURE 4.6 Marriages and Marriage Rates, Divorces and Divorce Rates by Region[1], Michigan Residents, 1982


REGION XIII
1- 753
2- 16.3
3- 302
4- 6.6
REGION XII
1- 1,714
2- 18.7
3- 726
4- 7.9
REGION XI
1- 509
2- 22.1
3- 146
4- 6.3
REGION IX
1- 1,149
2- 19.7
3- 459
4- 7.9
Michigan
1- 82,633
2- 17.9
3- 39,739
4- 8.6
REGION X
1- 2,303
2- 21.6
3- 1,018
4- 9.6
LEGEND
1. Number Marriages
2. Marriage Rate
3. Number Divorces
4. Divorce Rate
REGION VIII
1- 7,831
2- 20.4
3- 3,574
4- 9.3
REGION VII
1- 6,794
2- 17.7
3- 3,083
4- 8.0
REGION XIV
1- 3,137
2- 18.5
3- 1,259
4- 7.4
REGION V
1- 5,536 4- 9.9
2- 18.9
3-2,915
1- 4,217
2- 20.1
3- 1,891
4- 9.0
REGION VI
REGION I
1- 38,337
2- 16.6
3- 19,125
4- 8.3
REGION IV
1- 2,752
2- 19.5
3- 1,517
4- 10.7
REGION III
1-4,933
2- 19.6
3-2,449
4- 9.7
1-2,668
2- 19.0
3-1,275
4- 9.1
REGION II

---

[1] State Planning and Developement Regions - August, 1973

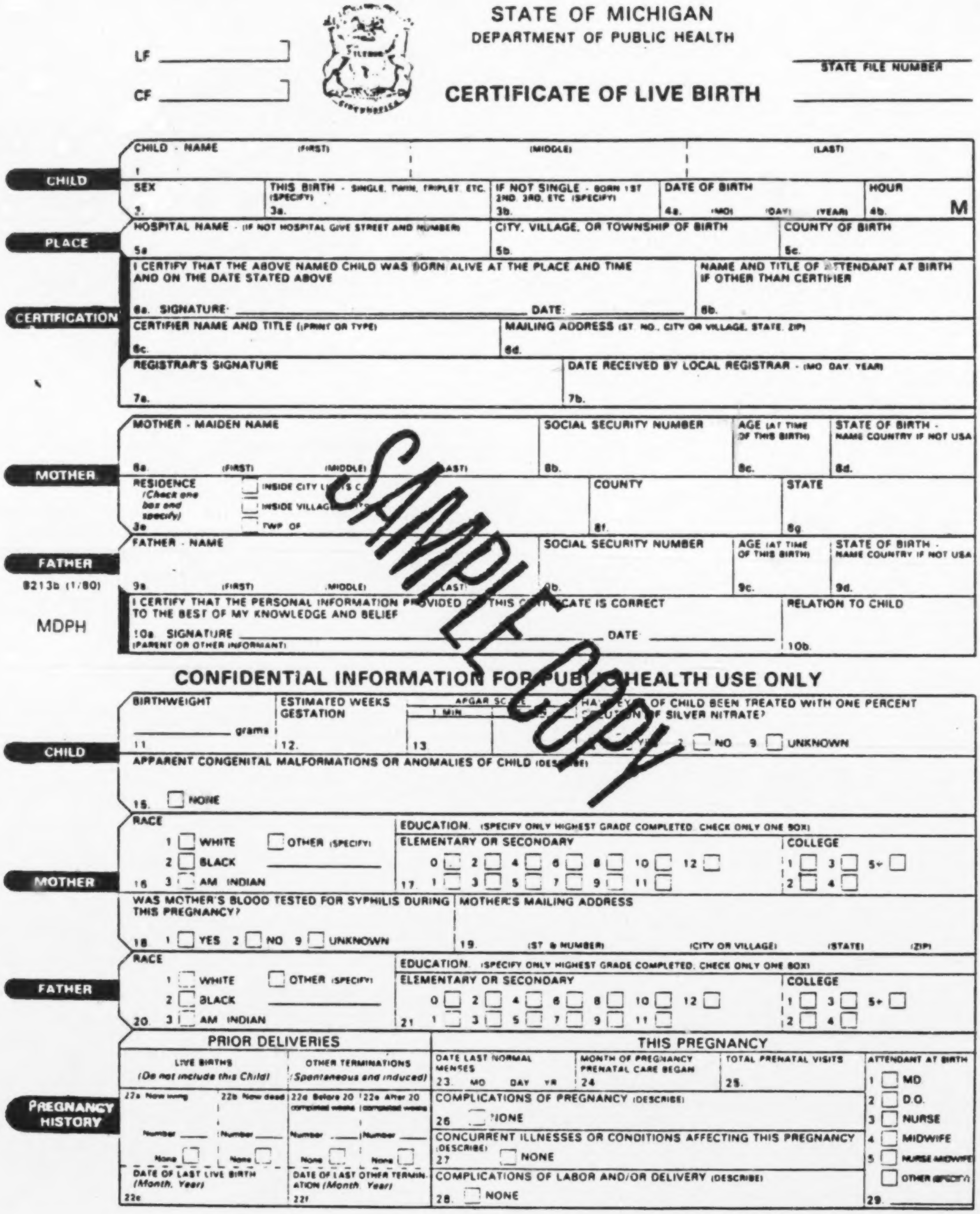
FIGURE 4.7 Life Expectancy at Birth By Sex By Region[1]
Michigan Residents, 1980-1982


REGION XIII
1-74.4
2-71.0
3-78.1
REGION XII
1-74.4
2-71.9
3-77.3
REGION XI
1-73.2
2-69.7
3-77.0
REGION IX
1-73.9
2-70.4
3-77.7
Michigan
1- 73.7
2- 70.3
3- 77.0
REGION X
1-74.4
2-71.2
3-77.6
LEGEND
1. Life Expectancy of the Resident Population
2. Life Expectancy of the Resident Male Population
3. Life Expectancy of the Resident Female Population
REGION VIII
1-75.0
2-71.7
3-78.4
REGION VII
1-74.3
2-70.9
3-77.7
REGION XIV
1-75.0
2-72.0
3-77.9
REGION V
1-73.3
2-69.9
3-76.7
1-75.7
2-72.5
3-78.8
REGION VI
REGION I
1-72.9
2-69.4
3-76.3
REGION IV
1-73.9
2-70.8
3-77.0
REGION III
1-74.8
2-71.5
3-78.0
1-74.2
2-71.3
3-77.1
REGION II

---

[1] State Planning and Developement Regions - August, 1973

Figure 4.8



STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

LF ____________

CF ____________

STATE FILE NUMBER ____________

CERTIFICATE OF LIVE BIRTH

CHILD

CHILD - NAME (FIRST) (MIDDLE) (LAST)
1.

SEX
2.

THIS BIRTH - SINGLE, TWIN, TRIPLET, ETC. (SPECIFY)
3a.

IF NOT SINGLE - BORN 1ST 2ND, 3RD, ETC. (SPECIFY)
3b.

DATE OF BIRTH
4a. (MO) (DAY) (YEAR)

HOUR
4b. M

PLACE

HOSPITAL NAME - (IF NOT HOSPITAL GIVE STREET AND NUMBER)
5a

CITY, VILLAGE, OR TOWNSHIP OF BIRTH
5b.

COUNTY OF BIRTH
5c.

CERTIFICATION

I CERTIFY THAT THE ABOVE NAMED CHILD WAS BORN ALIVE AT THE PLACE AND TIME AND ON THE DATE STATED ABOVE
6a. SIGNATURE: ____________ DATE: ____________

NAME AND TITLE OF ATTENDANT AT BIRTH IF OTHER THAN CERTIFIER
6b.

CERTIFIER NAME AND TITLE (PRINT OR TYPE)
6c.

MAILING ADDRESS (ST. NO., CITY OR VILLAGE, STATE, ZIP)
6d.

REGISTRAR'S SIGNATURE
7a.

DATE RECEIVED BY LOCAL REGISTRAR - (MO DAY YEAR)
7b.

MOTHER

MOTHER - MAIDEN NAME
8a. (FIRST) (MIDDLE) (LAST)

SOCIAL SECURITY NUMBER
8b.

AGE (AT TIME OF THIS BIRTH)
8c.

STATE OF BIRTH - NAME COUNTRY IF NOT USA
8d.

RESIDENCE (Check one box and specify)
8e
☐ INSIDE CITY LIMITS C
☐ INSIDE VILLAGE
☐ TWP OF

COUNTY
8f.

STATE
8g.

FATHER

FATHER - NAME
9a. (FIRST) (MIDDLE) (LAST)

SOCIAL SECURITY NUMBER
9b.

AGE (AT TIME OF THIS BIRTH)
9c.

STATE OF BIRTH - NAME COUNTRY IF NOT USA
9d.

8213b (1/80)

MDPH

I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THIS CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF
10a. SIGNATURE ____________ DATE ____________
(PARENT OR OTHER INFORMANT)

RELATION TO CHILD
10b.

SAMPLE COPY

CONFIDENTIAL INFORMATION FOR PUBLIC HEALTH USE ONLY

CHILD

BIRTHWEIGHT
11 ____________ grams

ESTIMATED WEEKS GESTATION
12.

APGAR SCORE
1 MIN 5 MIN
13

HAVE EYES OF CHILD BEEN TREATED WITH ONE PERCENT SOLUTION OF SILVER NITRATE?
1 ☐ YES 2 ☐ NO 9 ☐ UNKNOWN

APPARENT CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (DESCRIBE)
15. ☐ NONE

MOTHER

RACE
16.
1 ☐ WHITE
2 ☐ BLACK
3 ☐ AM. INDIAN
☐ OTHER (SPECIFY) ____________

EDUCATION. (SPECIFY ONLY HIGHEST GRADE COMPLETED. CHECK ONLY ONE BOX)
17.
ELEMENTARY OR SECONDARY
0 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ 10 ☐ 12 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐

WAS MOTHER'S BLOOD TESTED FOR SYPHILIS DURING THIS PREGNANCY?
18. 1 ☐ YES 2 ☐ NO 9 ☐ UNKNOWN

MOTHER'S MAILING ADDRESS
19. (ST. & NUMBER) (CITY OR VILLAGE) (STATE) (ZIP)

FATHER

RACE
20.
1 ☐ WHITE
2 ☐ BLACK
3 ☐ AM. INDIAN
☐ OTHER (SPECIFY) ____________

EDUCATION. (SPECIFY ONLY HIGHEST GRADE COMPLETED. CHECK ONLY ONE BOX)
21.
ELEMENTARY OR SECONDARY
0 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ 10 ☐ 12 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐

PREGNANCY HISTORY

PRIOR DELIVERIES

LIVE BIRTHS (Do not include this Child)
22a Now living — Number ____ None ☐
22b Now dead — Number ____ None ☐

OTHER TERMINATIONS (Spontaneous and induced)
22d Before 20 completed weeks — Number ____ None ☐
22e After 20 completed weeks — Number ____ None ☐

DATE OF LAST LIVE BIRTH (Month, Year)
22c

DATE OF LAST OTHER TERMINATION (Month, Year)
22f

THIS PREGNANCY

DATE LAST NORMAL MENSES
23. MO DAY YR

MONTH OF PREGNANCY PRENATAL CARE BEGAN
24

TOTAL PRENATAL VISITS
25.

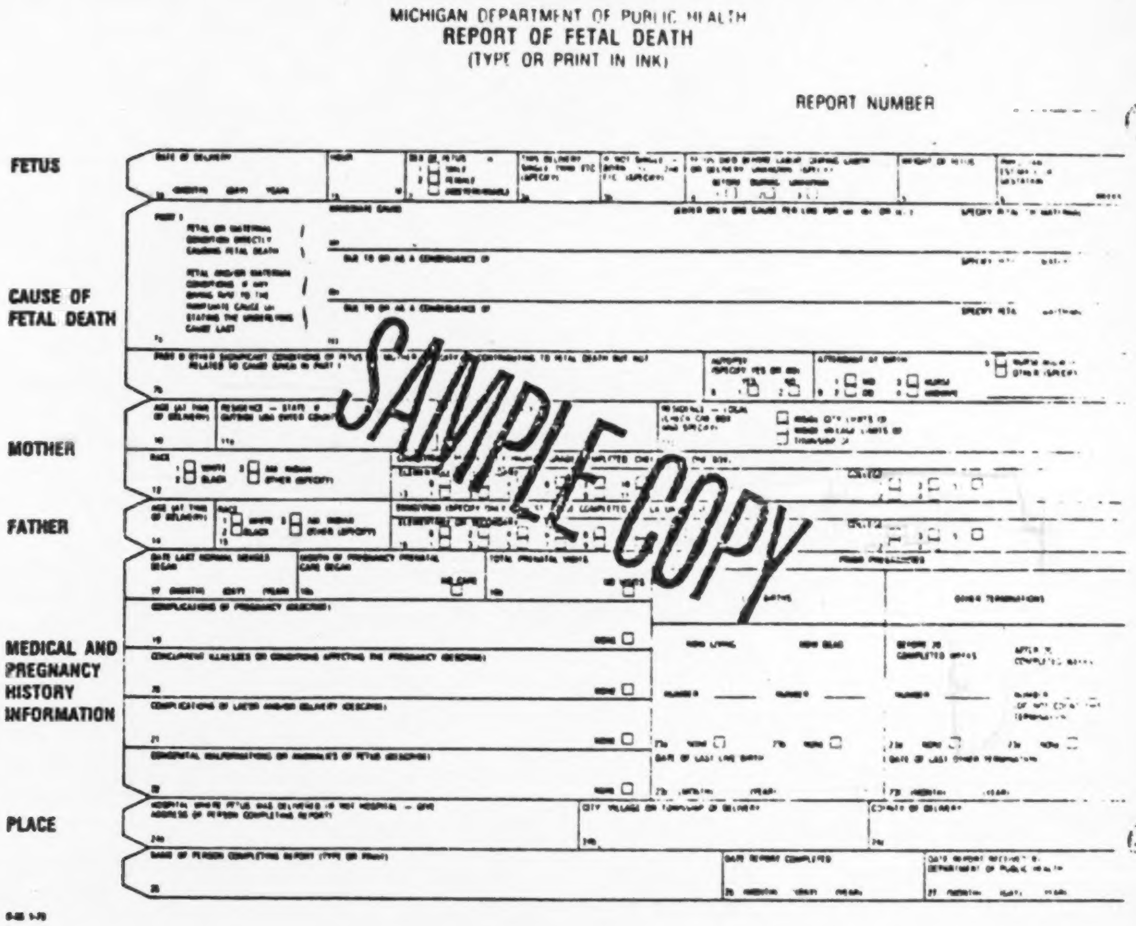
COMPLICATIONS OF PREGNANCY (DESCRIBE)
26 ☐ NONE

CONCURRENT ILLNESSES OR CONDITIONS AFFECTING THIS PREGNANCY (DESCRIBE)
27 ☐ NONE

COMPLICATIONS OF LABOR AND/OR DELIVERY (DESCRIBE)
28. ☐ NONE

ATTENDANT AT BIRTH
1 ☐ MD
2 ☐ D.O.
3 ☐ NURSE
4 ☐ MIDWIFE
5 ☐ NURSE MIDWIFE
☐ OTHER (SPECIFY)
29. ____________

FIGURE 4.9



MICHIGAN DEPARTMENT OF PUBLIC HEALTH
REPORT OF FETAL DEATH
(TYPE OR PRINT IN INK)

REPORT NUMBER

FETUS

CAUSE OF FETAL DEATH

MOTHER

FATHER

MEDICAL AND PREGNANCY HISTORY INFORMATION

PLACE

SAMPLE COPY

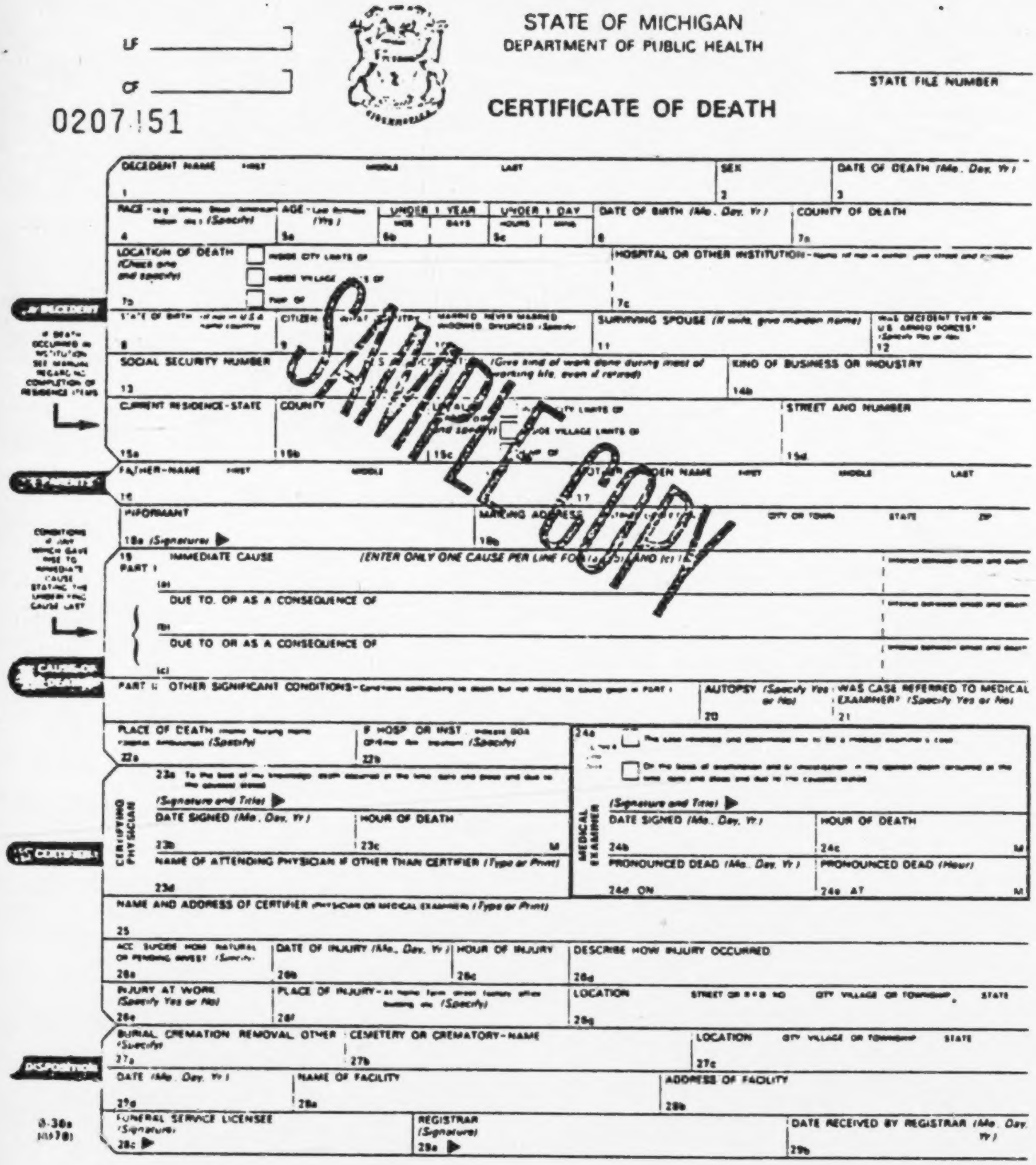
INSTRUCTIONS

Michigan Public Act 368 of 1978 requires the reporting of the death of a fetus which has completed 20 weeks of gestation or weighs at least 400 grams to the state registrar within 5 days after delivery. Responsibility for filing fetal death reports lies with the following: 1) the institution where the fetus is delivered; 2) the attending physician if delivered outside an institution; 3) the medical examiner, when investigation by the medical examiner is required.

As these reports are necessary in the development of important statistical health measures for the state, including fetal and perinatal mortality, and the analysis of various variables associated to fetal death outcomes, it is important that each report be as accurrate and complete as is possible.

DO NOT REPORT THE NAME OF THE BIOLOGICAL PARENTS, OR OTHER INFORMATION WHICH WOULD MAKE IT POSSIBLE TO IDENTIFY EITHER PARENT.

FIGURE 4.10



LF ______

CF ______

0207151

STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

CERTIFICATE OF DEATH

STATE FILE NUMBER

SAMPLE COPY

DECEDENT

DECEDENT NAME FIRST MIDDLE LAST 1
SEX 2
DATE OF DEATH (Mo. Day, Yr) 3
RACE (Specify) 4
AGE (Yrs) 5a
UNDER 1 YEAR MOS DAYS 5b
UNDER 1 DAY HOURS MINS 5c
DATE OF BIRTH (Mo. Day, Yr) 6
COUNTY OF DEATH 7a
LOCATION OF DEATH (Check one and specify) 7b
☐ INSIDE CITY LIMITS OF
☐ INSIDE VILLAGE LIMITS OF
☐ TWP OF
HOSPITAL OR OTHER INSTITUTION 7c
STATE OF BIRTH 8
CITIZEN 9
MARRIED NEVER MARRIED WIDOWED DIVORCED (Specify) 10
SURVIVING SPOUSE (If wife, give maiden name) 11
WAS DECEDENT EVER IN U.S. ARMED FORCES? (Specify Yes or No) 12
SOCIAL SECURITY NUMBER 13
(Give kind of work done during most of working life, even if retired)
KIND OF BUSINESS OR INDUSTRY 14b
CURRENT RESIDENCE-STATE 15a
COUNTY 15b
☐ INSIDE CITY LIMITS OF
☐ INSIDE VILLAGE LIMITS OF 15c
STREET AND NUMBER 15d

IF DEATH OCCURRED IN INSTITUTION SEE MANUAL REGARDING COMPLETION OF RESIDENCE ITEMS

PARENTS

FATHER-NAME FIRST MIDDLE LAST 16
MOTHER-MAIDEN NAME FIRST MIDDLE LAST 17
INFORMANT 18a (Signature) ▶
MAILING ADDRESS CITY OR TOWN STATE ZIP 18b

CAUSE OF DEATH

19 PART I IMMEDIATE CAUSE (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).)
(a)
DUE TO, OR AS A CONSEQUENCE OF
(b)
DUE TO OR AS A CONSEQUENCE OF
(c)

CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST

PART II OTHER SIGNIFICANT CONDITIONS
AUTOPSY (Specify Yes or No) 20
WAS CASE REFERRED TO MEDICAL EXAMINER? (Specify Yes or No) 21

CERTIFIER

PLACE OF DEATH (Specify) 22a
IF HOSP. OR INST. (Specify) 22b

CERTIFYING PHYSICIAN
23a (Signature and Title) ▶
DATE SIGNED (Mo. Day, Yr) 23b
HOUR OF DEATH 23c M
NAME OF ATTENDING PHYSICIAN IF OTHER THAN CERTIFIER (Type or Print) 23d

MEDICAL EXAMINER
24a ☐
☐
(Signature and Title) ▶
DATE SIGNED (Mo. Day, Yr) 24b
HOUR OF DEATH 24c M
PRONOUNCED DEAD (Mo. Day, Yr) 24d ON
PRONOUNCED DEAD (Hour) 24e AT M

NAME AND ADDRESS OF CERTIFIER (Type or Print) 25
(Specify) 26a
DATE OF INJURY (Mo. Day, Yr) 26b
HOUR OF INJURY 26c
DESCRIBE HOW INJURY OCCURRED 26d
INJURY AT WORK (Specify Yes or No) 26e
PLACE OF INJURY (Specify) 26f
LOCATION STREET OR R.F.D. NO. CITY VILLAGE OR TOWNSHIP STATE 26g

DISPOSITION

BURIAL, CREMATION, REMOVAL, OTHER (Specify) 27a
CEMETERY OR CREMATORY-NAME 27b
LOCATION CITY VILLAGE OR TOWNSHIP STATE 27c
DATE (Mo. Day, Yr) 29a
NAME OF FACILITY 28a
ADDRESS OF FACILITY 28b
FUNERAL SERVICE LICENSEE (Signature) 28c ▶
REGISTRAR (Signature) 29a ▶
DATE RECEIVED BY REGISTRAR (Mo. Day, Yr) 29b

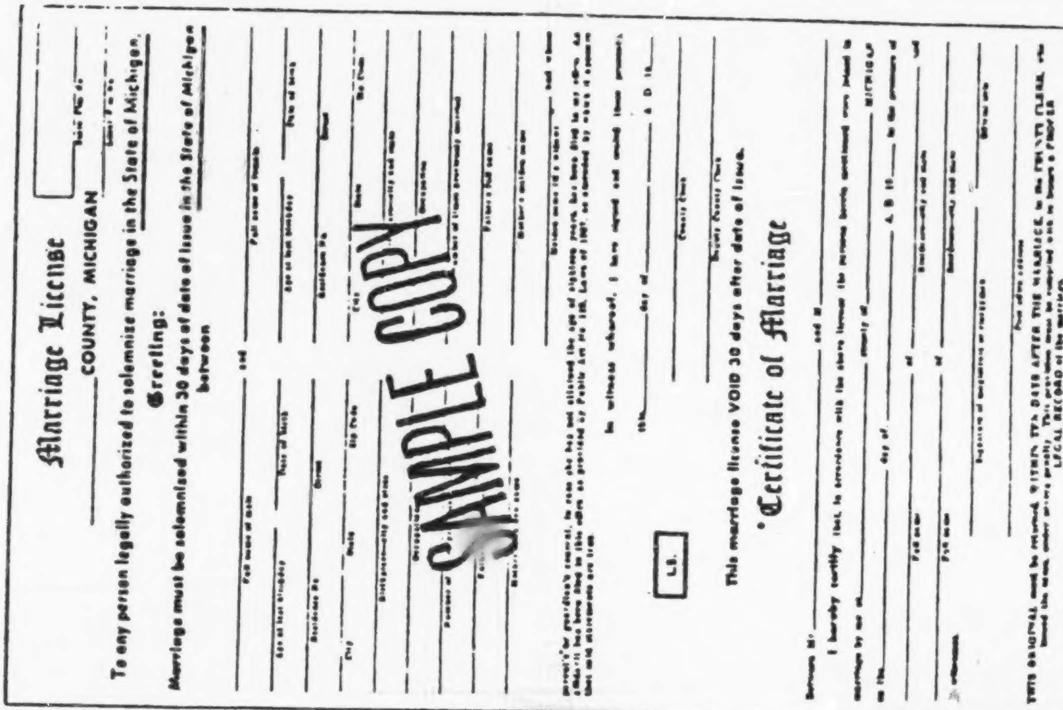
B-30a (11/78)

Michigan Public Act 343 of 1925, as amended, requires that the attending physician, or in the absence of an attending physician, a medical examiner shall fill out and sign the medical certificate of death within 48 hours after death.

The funeral director is responsible for completing all other portions of the certificate and obtaining a burial or removal permit prior to disposing of the body or removing from the registration district where the death occurred.

MDPH

FIGURE 4.11



Marriage License

COUNTY, MICHIGAN

To any person legally authorized to solemnize marriage in the State of Michigan,

Greeting:

Marriage must be solemnized within 30 days of date of issue in the State of Michigan between

SAMPLE COPY

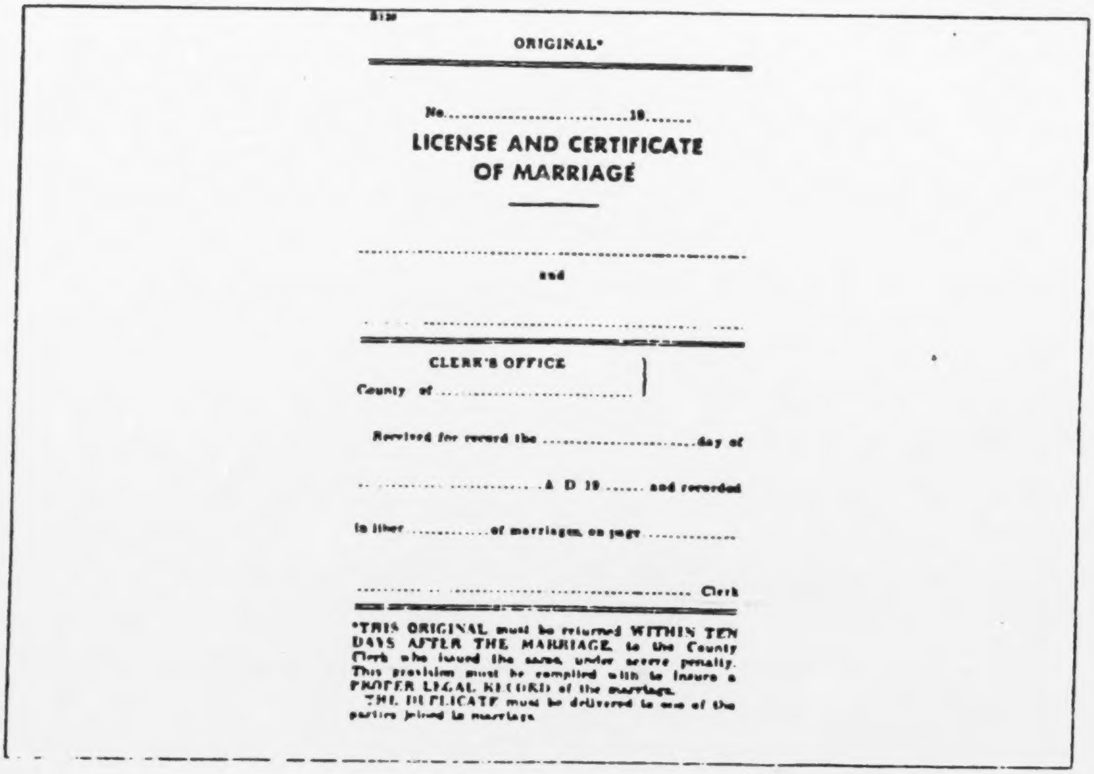
In witness whereof, I have signed and sealed these presents,

L.S.

This marriage license VOID 30 days after date of issue.

Certificate of Marriage

THIS ORIGINAL must be returned WITHIN TEN DAYS AFTER THE MARRIAGE to the PROBATE CLERK, who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.



ORIGINAL*

No............................19......

LICENSE AND CERTIFICATE OF MARRIAGE

....

and

....

CLERK'S OFFICE

County of ....

Received for record the ....day of

.... A D 19 ...... and recorded

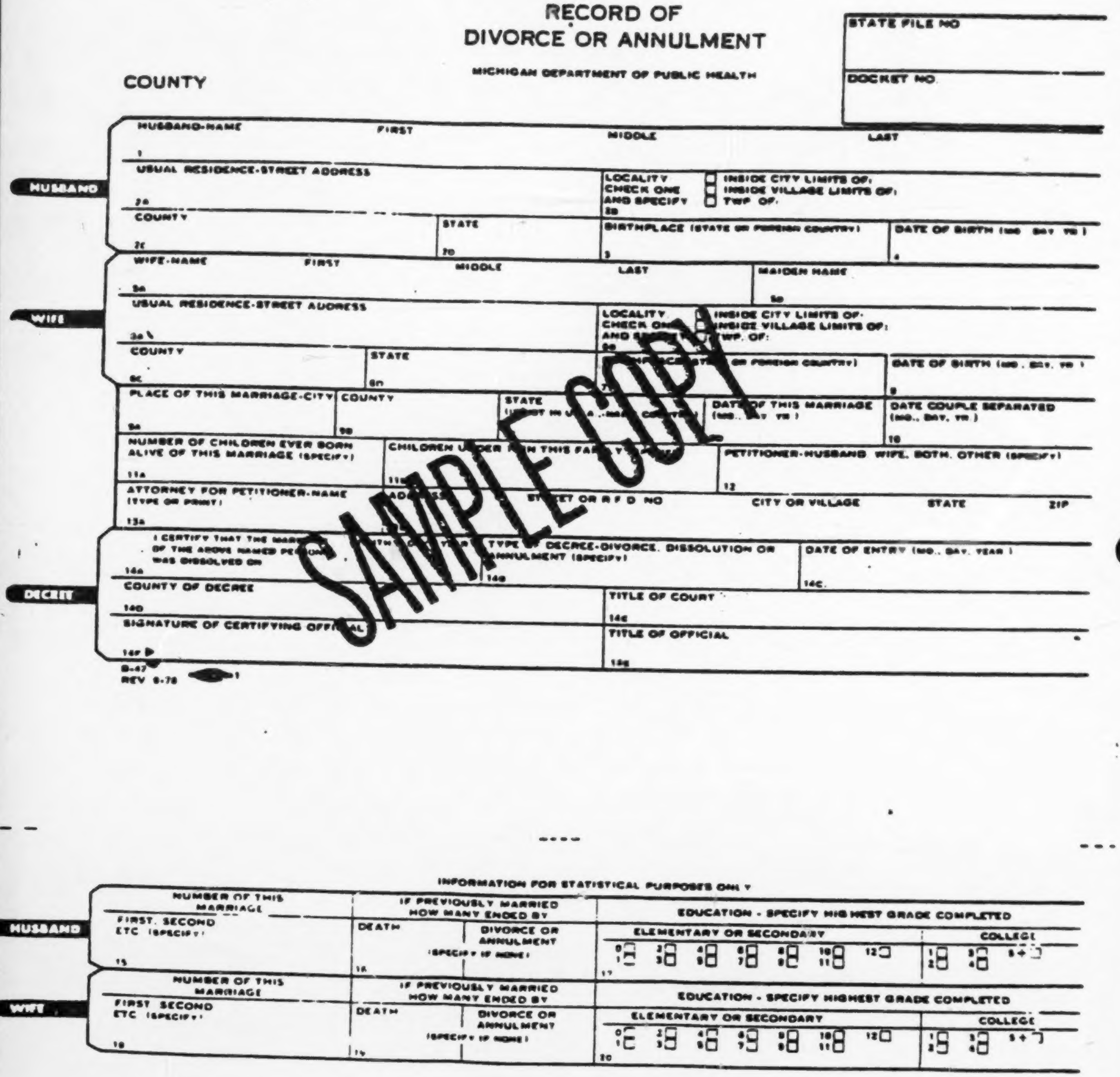
in liber ....of marriages, on page............

.... Clerk

*THIS ORIGINAL must be returned WITHIN TEN DAYS AFTER THE MARRIAGE, to the County Clerk who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

THE DUPLICATE must be delivered to one of the parties joined in marriage.

FIGURE 4.12



RECORD OF
DIVORCE OR ANNULMENT

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

COUNTY

STATE FILE NO

DOCKET NO

HUSBAND

HUSBAND-NAME FIRST MIDDLE LAST 1

USUAL RESIDENCE-STREET ADDRESS 2a

LOCALITY CHECK ONE AND SPECIFY 2b ☐ INSIDE CITY LIMITS OF: ☐ INSIDE VILLAGE LIMITS OF: ☐ TWP. OF:

COUNTY 2c

STATE 2d

BIRTHPLACE (STATE OR FOREIGN COUNTRY) 3

DATE OF BIRTH (MO. DAY YR.) 4

WIFE

WIFE-NAME FIRST MIDDLE LAST 5a

MAIDEN NAME 5b

USUAL RESIDENCE-STREET ADDRESS 6a

LOCALITY CHECK ONE AND SPECIFY 6b ☐ INSIDE CITY LIMITS OF: ☐ INSIDE VILLAGE LIMITS OF: ☐ TWP. OF:

COUNTY 6c

STATE 6d

BIRTHPLACE (STATE OR FOREIGN COUNTRY) 7

DATE OF BIRTH (MO., DAY, YR.) 8

PLACE OF THIS MARRIAGE-CITY 9a

COUNTY 9b

STATE (IF NOT IN U.S.A., NAME COUNTRY) 9c

DATE OF THIS MARRIAGE (MO., DAY, YR.) 9d

DATE COUPLE SEPARATED (MO., DAY, YR.) 10

NUMBER OF CHILDREN EVER BORN ALIVE OF THIS MARRIAGE (SPECIFY) 11a

CHILDREN UNDER 18 IN THIS FAMILY (SPECIFY) 11b

PETITIONER-HUSBAND, WIFE, BOTH, OTHER (SPECIFY) 12

ATTORNEY FOR PETITIONER-NAME (TYPE OR PRINT) 13a

ADDRESS STREET OR R F D NO CITY OR VILLAGE STATE ZIP 13b

DECREE

I CERTIFY THAT THE MARRIAGE OF THE ABOVE NAMED PERSONS WAS DISSOLVED ON [illegible] 14a

TYPE OF DECREE-DIVORCE, DISSOLUTION OR ANNULMENT (SPECIFY) 14b

DATE OF ENTRY (MO., DAY, YEAR) 14c

COUNTY OF DECREE 14d

TITLE OF COURT 14e

SIGNATURE OF CERTIFYING OFFICIAL 14f ▶

TITLE OF OFFICIAL 14g

B-47
REV 8-78

SAMPLE COPY

INFORMATION FOR STATISTICAL PURPOSES ONLY

HUSBAND

NUMBER OF THIS MARRIAGE FIRST, SECOND ETC. (SPECIFY) 15

IF PREVIOUSLY MARRIED HOW MANY ENDED BY 16 DEATH DIVORCE OR ANNULMENT (SPECIFY IF NONE)

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED 17

ELEMENTARY OR SECONDARY 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐

COLLEGE 1☐ 2☐ 3☐ 4☐ 5+☐

WIFE

NUMBER OF THIS MARRIAGE FIRST SECOND ETC. (SPECIFY) 18

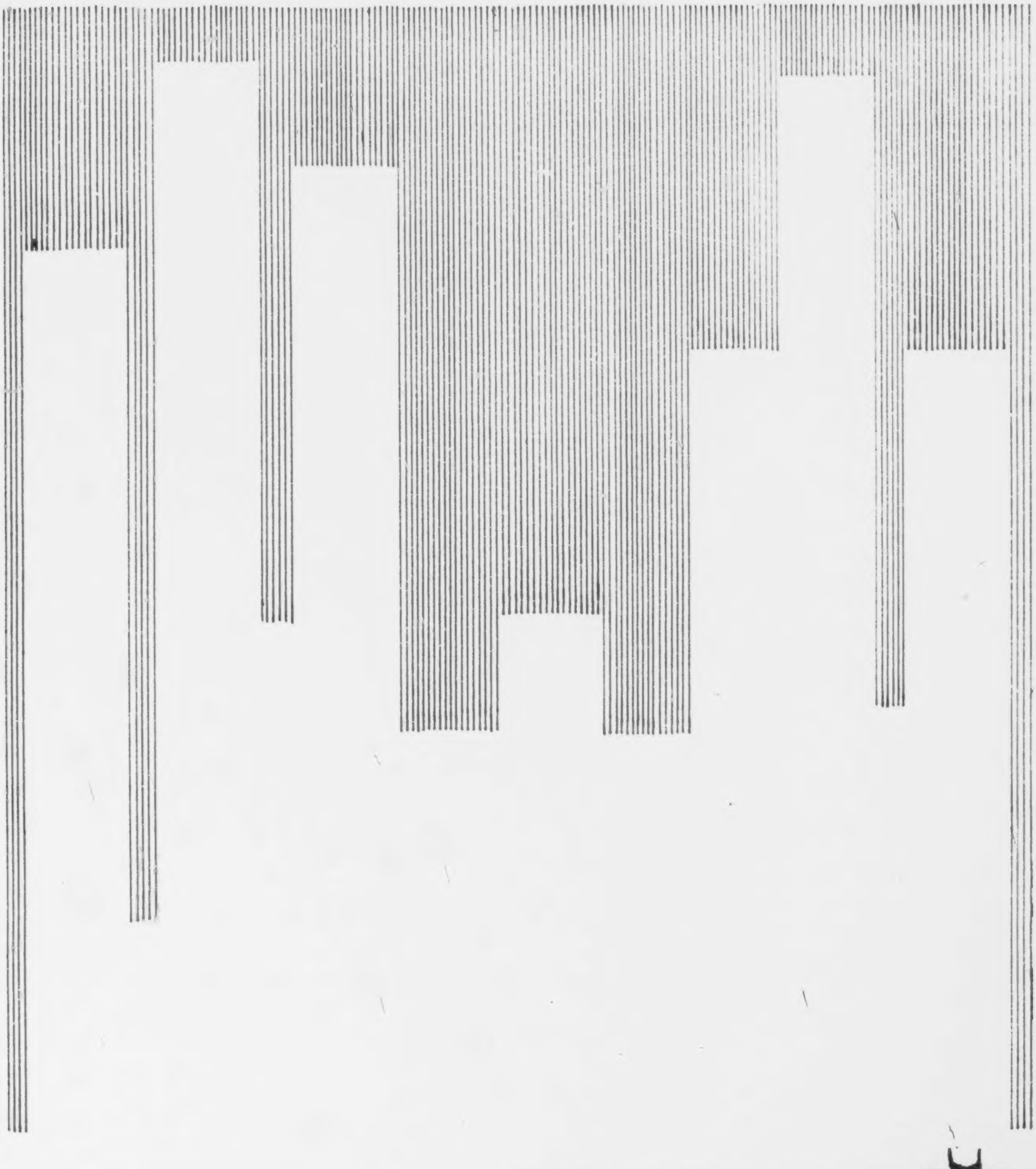
IF PREVIOUSLY MARRIED HOW MANY ENDED BY 19 DEATH DIVORCE OR ANNULMENT (SPECIFY IF NONE)

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED 20

ELEMENTARY OR SECONDARY 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐

COLLEGE 1☐ 2☐ 3☐ 4☐ 5+☐

MICHIGAN HEALTH STATISTICS Annual 1983



MICHIGAN DEPARTMENT OF PUBLIC HEALTH

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INTRODUCTION

The 1983 edition of Michigan Health Statistics is a statistical summary of vital events for calendar year 1983. Data relative to population, births, deaths, fetal deaths, marriages, divorces and communicable diseases are included. Although most of the data in this report pertain to events occurring in 1983, data for prior years have been included to illustrate trends. Most of the tabulations refer to Michigan residents. Some events, however, such as marriages and divorces are tabulated with respect to where the event occurred rather than the residence of the party or parties involved.

As a certain number of Michigan residents either deliver babies or die out of state each year, it is necessary to include data obtained from the certificates of other states in any tabulations pertaining to Michigan residents. This report includes all such out-of-state certificates received prior to April 30, 1984, and all in-state certificates and records received prior to March 15, 1983. Although a few records for the calendar year 1983 were received after these filing dates, their exclusion from this report is statistically insignificant.

This report is composed of the following sections and appendices:

1. Natality Section
2. Mortality Section
3. Marriage and Divorce Section
4. Reference Appendix

Comments or suggestions concerning the content and format of this report are always welcome. Any additional needs for data or analyses may be directed to the Office. A summary of prepared vital statistics tabulations, Index to Michigan Vital Statistics 1960 to Present, is also available. This index lists the types of tabulations and data available. The Office will make every attempt to comply with requests for data within the limitations of staff and resources.

Office of the State Registrar and
Center for Health Statistics
Michigan Department of Public Health
3500 North Logan Street
P.O. Box 30035
Lansing, Michigan 48909

Area Code (517) 373-1390

TECHNICAL NOTES, DEFINITIONS, RATES AND RATIOS

DEFINITIONS

BIRTH WEIGHT-Weight of fetus or infant at time of delivery.

FETAL DEATH-Death prior to the complete expulsion or extraction from its mother of a product of conception, having passed through at least the 20th week of gestation or weighing at least 400 grams; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. (Note: This includes both spontaneous and induced terminations.)

FIRST BIRTH-A live birth where the maternal medical history indicates there were no prior live births to the mother.

GESTATIONAL PERIOD-Number of weeks elapsed between the first day of the last menstral period and the date of delivery.

HEBDOMADAL DEATH-Death occurring to an individual less than 7 days of age.

INFANT DEATH-Death occurring to an individual less than 1 year of age.

INTERPREGNANCY TIME PERIOD-Birth date minus date of last termination, whether a live birth or fetal death, in months. Time periods of zero length are dropped to exclude 2nd or higher births of multiple deliveries.

LEADING CAUSES OF DEATH-Deaths are grouped into 72 categories dependent upon the underlying cause of death. Ranks are assigned by organizing these categories according to the number of deaths in each category from most frequent to least.

LIFE EXPECTANCY-A hypothetical calculation of the average age at death for a cohort of persons subject to the age-specific mortality rates observed over a given time period.

LIFE TABLE VALUES:
nqx=The proportion of persons in the cohort alive at the beginning of an age interval (x) who will die before reaching the end of that age interval (x+n).
lx=The number of persons living at the beginning of an age interval (x) out of an original cohort of 100,000.
ndx=The number of persons who would die during an age interval (x to x+n) out of an original cohort of 100,000.
nLx=The number of person-years that would be lived within an indicated age interval (x to x+n) out of an original

cohort of 100,000 alive for all or part of the interval.
Tx=The number of person-years that would be lived after the beginning of an age interval (x) by an original cohort of 100,000 until all are assumed to have died.
ex=The average remaining lifetime (in years) for an individual person who survives to the beginning of an indicated age interval (x).

LIVE BIRTH-A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.
Effective on November 9, 1981, the definition of a live birth is established in administrative rule number 325.3201 as follows:

> "Live birth" means the complete expulsion or extraction from a pregnant woman of a product of human conception which, after such expulsion or extraction, shows any evidence of life, whether or not the umbilical cord has been cut or the placenta is attached.

LIVE-BIRTH ORDER-Order number is equal to number of previous live births plus current birth.

LOW-WEIGHT BIRTH-Birth wherein the birth weight is equivalent to 2,500 grams or less (approximately 5 lbs., 8 oz.).

MATERNAL DEATHS-Those deaths wherein the physician has designated a maternal condition as the underlying cause of death (9th Revision ICD codes 630-676).

MEAN-The average of a set of values, equal to the sum of the values divided by the number of values.

MEDIAN-The central value of a distribution of values wherein the same percentage of observations are above this point as are below.

MINOR CIVIL DIVISION-City, village, or township.

NEONATAL DEATH-Death occurring to individual less than 28 days of age.

OCCURRENCE-Place where the event actually occurred.

PERINATAL DEATH-Fetal death or death under 1 week of age.

PROBABILITY OF EVENTUALLY DYING FROM A GIVEN CAUSE OF DEATH-The chance of death due to a given cause rather than some competitive cause over the course of a lifetime based on current mortality data and life expectancy techniques.

RACE-Race for mother, father, or decedent is as stated on certificate. Race of child is determined from the race of the parents.

REMAINING YEARS OF LIFE-A hypothetical calculation of the average number of years a cohort of persons will live given that they have reached a specific age and assuming they are subject to the age-specific mortality rates observed over a given time period.

RESIDENCE-Usual place of residence for the person to whom the event occurred. For births and fetal deaths residence is defined as the mother's usual place of residence.

TOTAL BIRTHS-Live births and fetal deaths.

UNDERLYING CAUSE OF DEATH-That condition giving rise to the chain of events leading to death.

RATES AND RATIOS

AGE-ADJUSTED DEATH RATE-A summary rate of death that is developed using a standard population distribution to improve the comparability of rates for areas or population subgroups with differing age distributions. When calculated by the direct method, as in this report, age-specific death rates for a geographic area or population subgroup are multiplied by the standard population by specific age and the products summed and divided by the total standard population. Age-adjusted death rates represent the mortality experience that would have occurred in a standard population had the age-specific rates of the area or population subgroup been experienced by the standard population. These rates are presented as per 100,000 population.

AGE-SPECIFIC BIRTH RATE-No. of resident live births to women of a specific age divided by total female population of specific age x 1,000.

AGE-SPECIFIC DEATH RATE-No. of deaths in specific age group divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC DEATH RATE BY CAUSE OF DEATH-No. of deaths in specific age group and from a specific cause divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC MARRIAGE RATE-No. of marriages in specific age group by sex divided by total resident population in specific age and sex group x 1,000.

CAUSE-SPECIFIC RATE-No. of deaths due to a specific cause divided by total resident population x 100,000.

CONGENITAL ANOMALY RATE -- No. of resident live births with a congenital malformation reported divided by the total number of resident live births x 10,000.

COMMUNICABLE DISEASE CASE RATE-No. of reported cases (specific communicable diseases) divided by total resident population x 100,000.

CRUDE BIRTH RATE-No. of resident live births divided by total resident population x 1,000.

CRUDE DEATH RATE-No. of resident deaths divided by total resident population x 1,000.

DIVORCE RATE-No. of persons (divorces and annulments) divided by total resident population x 1,000.

FERTILITY RATE-No. of resident live births divided by total female population (ages 15-44) x 1,000.

FETAL DEATH RATE-No. of resident fetal deaths divided by total resident live births and resident fetal deaths x 1,000.

FETAL DEATH RATIO-No. of resident fetal deaths divided by total resident live births x 1,000.

FIRST MARRIAGE RATE-No. of marriages to persons not previously married by sex divided by total resident population by sex x 1,000.

INFANT MORTALITY RATE-No. of infant deaths divided by total resident live births x 1,000.

LOW-WEIGHT BIRTH RATIO-No. of low-weight births divided by total resident live births x 1,000.

MARRIAGE RATE-No. of persons married divided by total resident population x 1,000.

MATERNAL DEATH RATE-No. of maternal deaths divided by total resident live births x 10,000.

NEONATAL DEATH RATE-No. of neonatal deaths divided by total resident live births x 1,000.

NO PRENATAL CARE RATIO-No. of live births to mothers with no prenatal care divided by total resident live births x 1,000.

PERINATAL DEATH RATE-No. of perinatal deaths divided by total resident live births and resident fetal deaths x

1,000.

RATE OF NATURAL INCREASE-(Total resident live births minus total resident deaths) divided by total resident population x 1,000.

TOTAL FERTILITY RATE-Sum of (age-specific birth rates) x (number of years in age group) for each age group from ages 10-14 through 45-49 years.

RELIABILITY OF RATES

Care should be taken in drawing specific inferences from comparisons of rates for different areas or different periods of time. Rates based on a small number of events or for a small area tend to exhibit considerable variation from time period to time period or place to place. Excessive variation in rates not only negates their utility as estimators of the probability of an event occurring but also their usefulness for comparative purposes. Also, one should recognize the limitations of using unadjusted rates in attempting to attribute rate differences to particular factors. For example, one should not attempt to state that there was a significant difference in rates for two geographic areas for atherosclerosis without first adjusting the rates to negate the effects of differing age distributions in the two areas. Many times there are simply not sufficient data available to adequately adjust rates for all possible confounding factors. For this reason the reader should exercise diligence and caution while attempting to draw substantive conclusions when comparing vital statistics rates.

QUALIFICATIONS AND LIMITATIONS OF DATA AND CALCULATIONS

UNDERREGISTRATION OF EVENTS

The underregistration of vital events in Michigan is considered to be a minimal problem particularly for births and deaths. Tests of registration completeness conducted in conjunction with the 1950 Census indicate that the registration of births was 98.5 percent complete, and that death registration was even more complete. The number of certificates received too late for inclusion in annual statistical files is insignificant when examining statewide patterns.

GEOGRAPHIC ALLOCATION

The allocation of events on a residence or occurrence basis is for the most part accurate and complete. However, allocations to minor civil divisions are subject to question in some instances. In those cases where the respondent completes the residence item with a mailing address, geographic allocation is sometimes undeterminable and the record receives an unknown minor civil division code.

FETAL DEATHS

Fetal deaths in Michigan include only those conceptions that have passed through 20 weeks gestation or that weigh 400 grams or more. Prior to the introduction of a new reporting form for fetal deaths on September 30, 1978, Michigan law required only the reporting of deaths of fetuses which had passed through 20 weeks gestation. Inadequacies in determining the gestational age of the fetus may have resulted in some underreporting of fetal deaths. The change in definition has had little impact on the number of fetal deaths reported.

COMPARABILITY IN CAUSE OF DEATH STATISTICS

The reader should bear in mind two major limitations in interpreting changes in cause-of-death statistics. Changes in nomenclature and the classification scheme (International Classification of Diseases) and changes in diagnostic practices may seriously affect the comparability of such statistics over time. The classification scheme (ICD) is modified approximately once every ten years to reflect changing medical opinion and practice. The reader is most accurate when comparing cause-of-death certificates which are coded via one revision of the International Classification of Diseases and utilizing the coding practices and procedures in effect at that time.

In order to compare cause-of-death statistics from one revision to the next: it is necessary to apply a 'comparability ratio'. Such ratios are developed by comparing the number of deaths assigned to a certain condition or group of conditions under one revision to the number assigned under another revision of the ICD.

In 1979 the 9th Revision of the International Classification of Diseases, WHO, was introduced for coding causes of death and was employed in categorizing the data for 1983.

LIFE EXPECTANCY

The procedure used to obtain the Michigan life table values is called the iterative method. This is a method which has been developed by Felix Moore formerly of the Department of Biostatistics, School of Public Health, University of Michigan.

For the age group 0-1 the method utilizes the algorithm developed by Greville with no iteration. For all subsequent age groups the method of Greville (Keyfitz) is used with three iterations to improve the estimate of ndx and nqx. An iteration procedure is also used for nLx for age groups 75-80 and 80-85 where the accuracy of mortality information is a factor and for obtaining the separation factor for the age group 1-4.

The life expectancy data by region shown in Figure 4.7 was prepared using mortality data for the period 1979-1981 and census population data for 1980. Data were grouped by ten year age groups (except for the age groups under 1 year and 1-4 years) to compute the life expectancy at birth for the regions.

AGE-ADJUSTMENT PROCEDURE AND POPULATION ESTIMATION

Population data for 1970 and 1980 were obtained from the April 1, 1970 and April 1, 1980 census counts. Data for 1980 include revised census data as released by the Census Bureau. The population totals used for 1971-1979 are intercensal estimates prepared by the Census Bureau utilizing the revised 1980 census figures. The breakdowns of these totals by age, race, and sex were prepared by the Office of the State Registrar and Center for Health Statistics. For 1970 and 1980 the proportion of the total population in each age, race, and sex group was computed. Estimates of the proportion of the total population in each age, race, and sex group for the years 1971-1979 were then derived by interpolating between the proportions for 1970 and 1980. These subgroup proportions were then applied to the state totals to obtain population estimates by age, race, and sex for years 1971-1979.

Population estimates by age, race and sex for 1983 were prepared by projecting the mean annual change in the race proportions of each age-sex group of the population observed between the 1970 and 1980 censuses.

The age-adjusted rates for Michigan presented in this report for years 1970-1983 were calculated using Michigan resident mortality data and the series of population data described above. Death records with the race not stated were first randomly allocated to the white and other than white groups based on the proportion of Michigan resident deaths in each of the racial categories for that year. Records with sex not stated were randomly assigned to male and female (50 percent each). Records with age not stated were allocated to the age group 85 and over.

In the age-adjustment procedure ten age groups were employed including under 1 year, 1-14 years, ten year age groups from 15-24 years to age 75-84, and 85 years and over. Age-specific rates for the total population and for each subgroup were applied to the same standard population distributed by age. The resulting "expected deaths" were then summed over the ten age groups and divided by the total of the standard population to obtain the age-adjusted rate. The standard population selected was the 1940 United States enumerated population. Comparisons can be made between subgroup rates, between rates in different years, and between rates for Michigan and similarly computed rates for the United States.

UNITED STATES DEATH RATES

Death rates for the United States were taken from publications by the National Center for Health Statistics, U.S. Dept. of Health and Human Services. Rates for the United States shown in the series of tables of age-adjusted death rates for Michigan and the United States are based on the 1980 census enumeration. The U.S. rates for 1971-1980 have been revised as a result of the large difference between the 1980 census enumeration and the previously estimated population for 1980. The 1980 census enumeration was about 5.5 million higher than the estimated population for April 1, 1980.

The unadjusted death rates for the U.S. for all causes and by cause for 1981, 1982 and 1983 quoted in the text and shown in Tables 2.1 and 2.7 were calculated using population estimates based on the 1980 census enumeration.

NATALITY

SECTION I

NATALITY: AN OVERVIEW, 1983

TOTAL RESIDENT BIRTHS	133,869
TOTAL RESIDENT LIVE BIRTHS	133,026
RESIDENT LIVE BIRTHS PER DAY	364.5
TOTAL RESIDENT FETAL DEATHS	843
RESIDENT FETAL DEATHS PER DAY	2.3
CRUDE BIRTH RATE	14.5
FERTILITY RATE	59.3
FETAL DEATH RATIO	6.3
FIRST ORDER BIRTHS (PERCENT OF TOTAL LIVE BIRTHS)	40.8
MEDIAN BIRTH WEIGHT IN GRAMS (LIVE BIRTHS)	3,402
MEDIAN BIRTH WEIGHT IN GRAMS (FETAL DEATHS)	1,360
LOW WEIGHT LIVE BIRTHS	9,426
LOW WEIGHT BIRTH RATIO	70.9
MEDIAN AGE OF MOTHER (LIVE BIRTHS)	26
MEDIAN AGE OF MOTHER (FETAL DEATHS)	25
LIVE BIRTHS WITH CONGENITAL ANOMALIES	1,059
CONGENITAL ANOMALIES PER 10,000 LIVE BIRTHS	79.6
LIVE BIRTHS WITH NO PRENATAL CARE	980
NO PRENATAL CARE RATIO	7.4
HOME BIRTHS	670
LIVE BORN SETS OF TWINS	1,371
LIVE BORN SETS OF TRIPLETS	13
LIVE BORN MULTIPLE BIRTHS OF FOUR OR MORE	-
MALE LIVE BIRTHS PER 100 FEMALE LIVE BIRTHS	106.3

Between 1900 and 1983 the number of births has varied considerably. The general trend has been increasing numbers of births from 1900 through 1957 and declining numbers since that time. According to the annual enumeration of births by local officials in 1900 there were 45,024 births in Michigan. This figure dropped slightly to 44,722 in 1901 (the lowest total in the century). The number of births reported increased significantly with the initiation in 1906 of mandatory filing of individual certificates for each Michigan birth. Births increased during the next two decades, dropped temporarily in 1919, and then leveled off at just over 100,000 between 1924 and 1930. During the first years of the Great Depression, births declined from 102,596 in 1930 to 83,258 in 1933. Then from 1933 to 1957, excluding the war years of 1944 and 1945, births increased to a century high peak of 211,642 in 1957. Births in the next two decades dropped to a post-World War II low of 132,642 in 1976. Since 1976, the number of births increased, reaching 146,338 in 1980,then declined to 133,869 in 1983 (Table 1.1).

LIVE BIRTHS

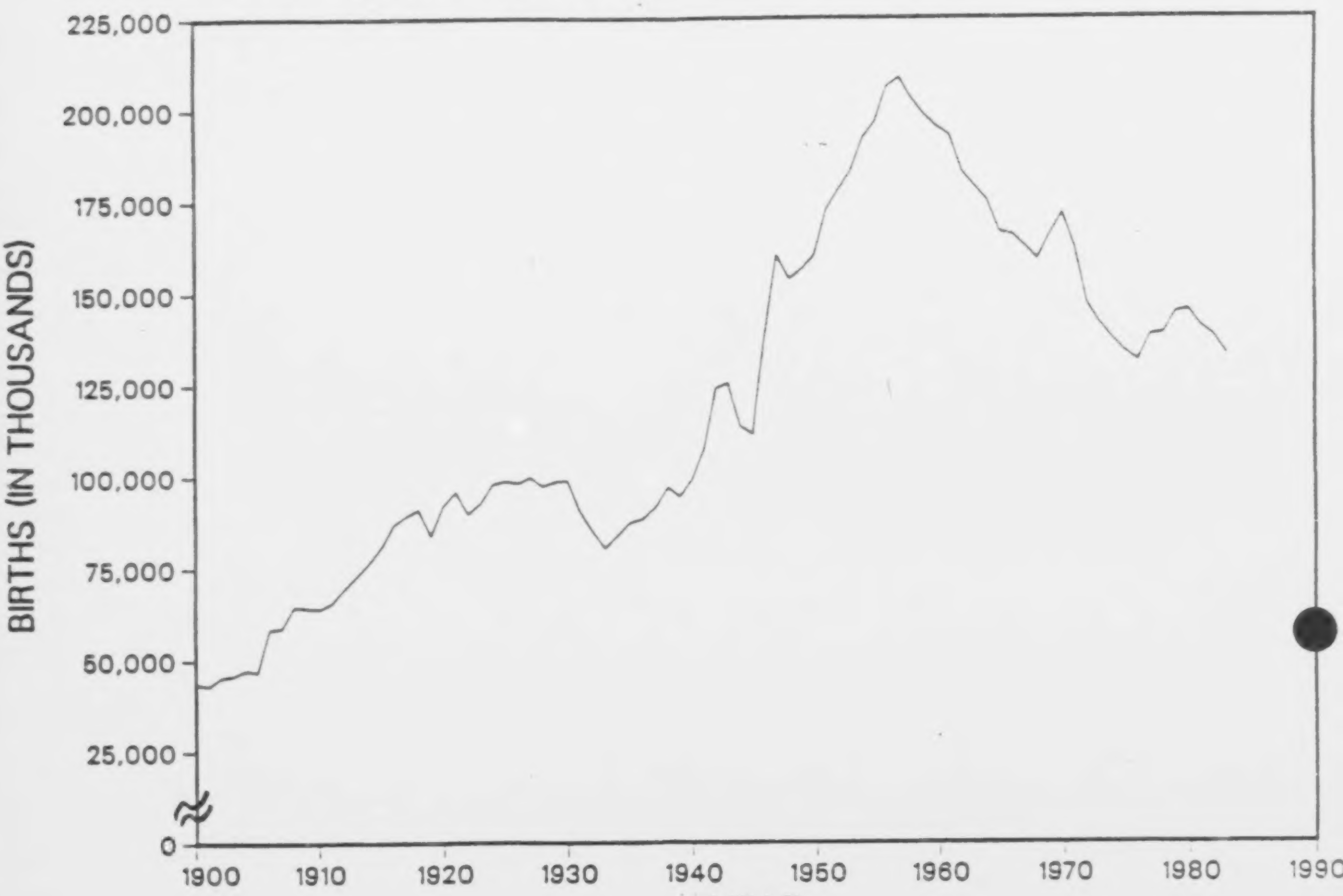
The smallest number of live births officially recorded in this century was 43,221 in 1901. The actual number of live births was undoubtedly higher. Because of the method of recording many live births were probably not recorded. Figure 1.1 portrays the number of live births for Michigan from 1900 through 1983. Live births, which constitute a large percentage of total births, naturally followed the same pattern of increases and decreases, rising appreciably from 43,699 in 1900 to 208,488 in 1957, the peak year for this century. Between 1957 and 1976, live births decreased by 37 percent to 131,378, the lowest total in 31 years. In 1977, however, live births increased by 5.4 percent, the largest such increase since 1951. In each of the following three years the number of live births also increased. In 1980 there were 145,162 live births, the highest annual total since 1972. Since 1980 the number of live births declined by 8.4 percent, reaching 140,579 in 1981 and 133,026 in 1983.

The national pattern is similar to that observed in Michigan. Live births increased from an estimated 2,718,000 in 1909 to an estimated 4,300,000 in 1957. Since 1957, there has been a general decline in live births. The low point occurred in 1973 when live births in the United States totaled 3,136,965. Unlike Michigan, the number of live births for the nation increased in each of the seven years from 1976 through 1982. For 1983 the provisional figure was 3,614,000, a decrease of 1.8 percent from the figure for 1982.

Table 1.1
Total Births, Michigan Residents,
Selected Years, 1900-1983

YEAR	TOTAL BIRTHS
1900	45,024
1901	44,722
1910	66,668
1920	96,015
1930	102,596
1933	83,258
1940	101,708
1950	163,150
1957	211,642
1960	198,064
1970	173,727
1971	164,167
1972	148,624
1973	143,232
1974	138,852
1975	135,287
1976	132,642
1977	139,700
1978	140,003
1979	145,627
1980	146,297
1981	141,619
1982	138,903
1983	133,869

FIGURE 1.1
LIVE BIRTHS, MICHIGAN RESIDENTS, 1900-1983



Another view of the historic pattern in live births may be obtained through examination of changes in the crude birth rate. By considering population size the historic pattern of live births is stabilized (Figure 1.2). The crude birth rate in Michigan ranges from a low of 14.4 in 1976 to a high of 27.4 in 1956. The crude birth rate increased from 22.1 in 1906, the first year for filing birth certificates, to 26.2 in 1916. During the period 1917 to 1933 Michigan's crude birth rate declined steadily, reaching 16.2. The birth rate rose over the next 23 years to a peak in 1956 (27.4). Between 1956 and 1976 Michigan's crude birth rate declined by 47 percent, falling to 14.4. The crude birth rate then increased reaching 15.7 by 1980. By 1983 the crude birth rate had declined to 14.5.

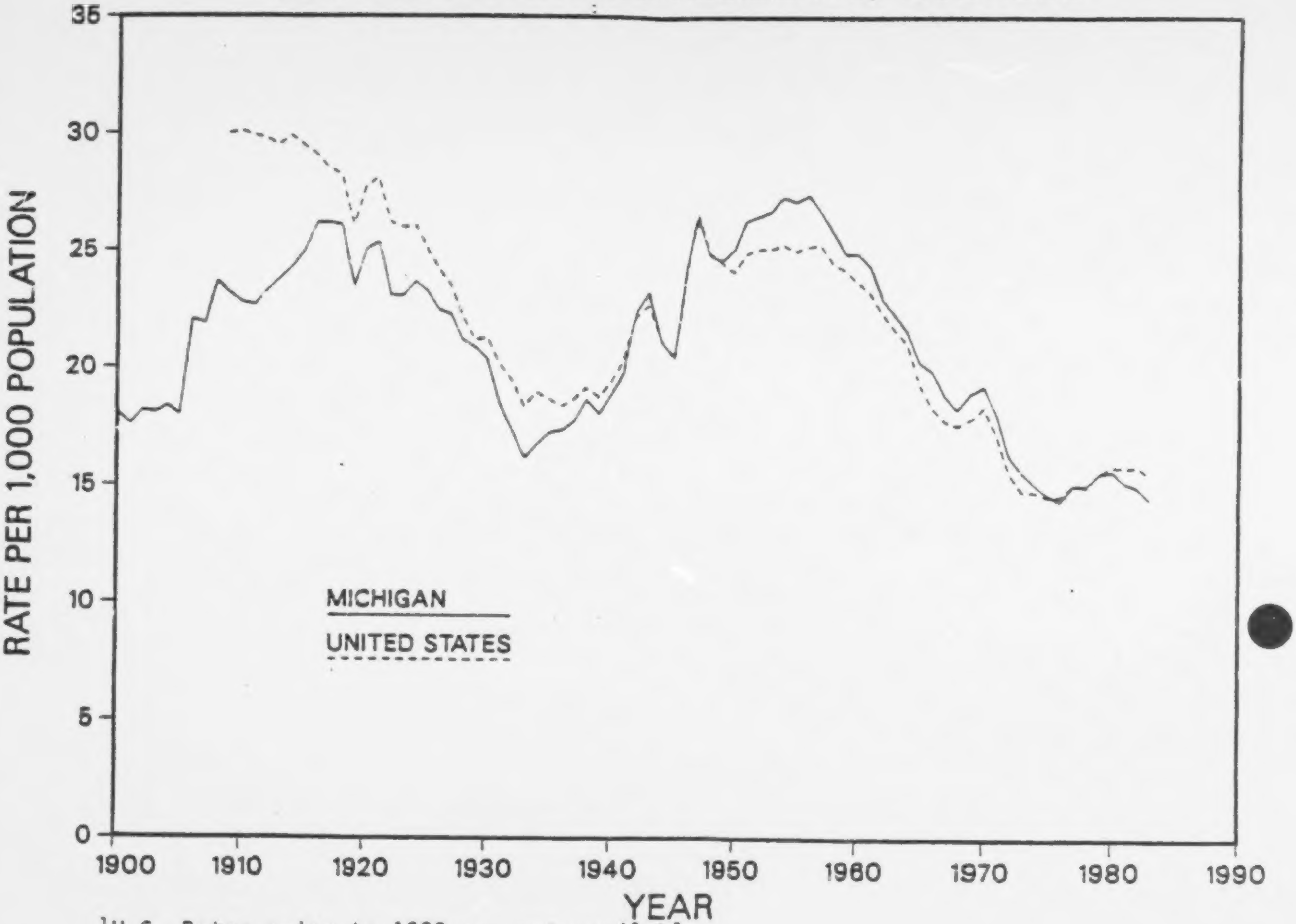
National statistics since 1900 follow the same general pattern of rising and falling as observed in Michigan. The highest rate observed nationally over the period 1909 through 1983 was 30.1 in 1910, while the lowest was 14.6, occurring in both 1975 and 1976. United States live birth rates were above those observed in Michigan without exception from 1909 to 1941. Between 1942 and 1947, national rates were above those for the state twice. National birth rates were below Michigan rates from 1948 through 1974. For the past seven years the rate for the nation has been above that observed in Michigan. In 1983 the provisional rate for the United States was 15.5 (Table 1.2).

FERTILITY

The crude birth rates examined above are useful statistics for gauging overall trends in live births for specific geographic areas. Where attempts are made to interpret such trends, however, crude birth rates can be misleading. These rates do not specifically incorporate the size of the population capable of bearing children. This population subset, generally considered to be women between the ages of 15 through 44, does not always maintain a stable relationship with the total population. A measure for analyzing changing birth patterns that is more exact is the fertility rate. Since the fertility rate relates the number of live births to the female population of childbearing age, valid comparisons for various periods of time and various locations are possible.

A comparison of fertility rates for Michigan with those for the United States is presented in Table 1.3. The crude birth rate changes observed understate the recent decline in fecundity for both regions. Since 1960 the crude birth rate in Michigan has dropped 41.8 percent, while the fertility rate in 1983 was 51.8 percent below the 1960 rate. For the United States over this same period the crude birth rate

FIGURE 1.2
LIVE BIRTH RATES, MICHIGAN RESIDENTS, 1900-1983 AND UNITED STATES RESIDENTS[1], 1909-1983



[1] U.S. Rates prior to 1909 are not available.
U.S. 1983 figure is provisional.

Table 1.2
Live Births and Crude Birth Rates, Michigan and United States Residents, Selected Years, 1900-1983

UNITED STATES		YEAR	MICHIGAN	
LIVE BIRTHS	RATE		LIVE BIRTHS	RATE
---	---	1900	43,699	18.1
2,777,000	30.1	1910	64,109	22.8
2,950,000	27.7	1920	92,245	25.1
2,618,000	21.3	1930	98,882	20.4
2,559,000	19.4	1940	99,106	18.9
3,632,000	24.1	1950	160,055	25.1
4,257,850	23.7	1960	195,056	24.9
4,268,326	23.3	1961	192,825	24.4
4,167,362	22.4	1962	182,790	23.0
4,098,020	21.7	1963	178,871	22.3
4,027,490	21.1	1964	175,103	21.6
3,760,358	19.4	1965	166,464	20.3
3,606,274	18.4	1966	165,794	19.9
3,520,959	17.8	1967	162,756	18.9
3,501,564	17.6	1968	159,058	18.3
3,600,206	17.9	1969	165,760	19.0
3,731,386	18.4	1970	171,667	19.3
3,555,970	17.2	1971	162,244	18.1
3,258,411	15.6	1972	146,854	16.3
3,136,965	14.8	1973	141,550	15.6
3,159,958	14.8	1974	137,414	15.1
3,144,198	14.6	1975	133,931	14.7
3,167,788	14.6	1976	131,378	14.4
3,326,632	15.1	1977	138,416	15.1
3,333,279	15.0	1978	138,802	15.1
3,494,398	15.6	1979	144,452	15.6
3,612,258	15.9	1980	145,162	15.7
3,629,238	15.8	1981	140,579	15.2
3,680,537	15.9	1982	137,950	15.0
3,614,000Pr.	15.5Pr.	1983	133,026	14.5

Table 1.3
Fertility Rates, Michigan and United States
Residents, Selected Years, 1900-1983

UNITED STATES	YEAR	MICHIGAN
---	1900	78.5
126.8	1910	99.0
117.9	1920	111.6
89.2	1930	87.6
79.9	1940	78.9
106.2	1950	110.5
118.0	1960	123.1
117.1	1961	119.0
112.0	1962	110.8
108.3	1963	106.6
104.7	1964	102.6
96.3	1965	95.9
90.8	1966	94.0
87.2	1967	90.8
85.2	1968	87.3
86.1	1969	89.6
87.9	1970	91.7
81.6	1971	84.5
73.1	1972	75.1
68.8	1973	71.2
67.8	1974	68.0
66.0	1975	65.5
65.0	1976	63.5
66.8	1977	65.9
65.5	1978	65.0
67.2	1979	66.6
68.4	1980	66.3
67.4	1981	63.2
67.3	1982	61.7
65.4Pr.	1983	59.3

declined 34.6 percent and the fertility rate fell by 44.6 percent. The proportion of the population in the childbearing ages has increased over this 20 year period.

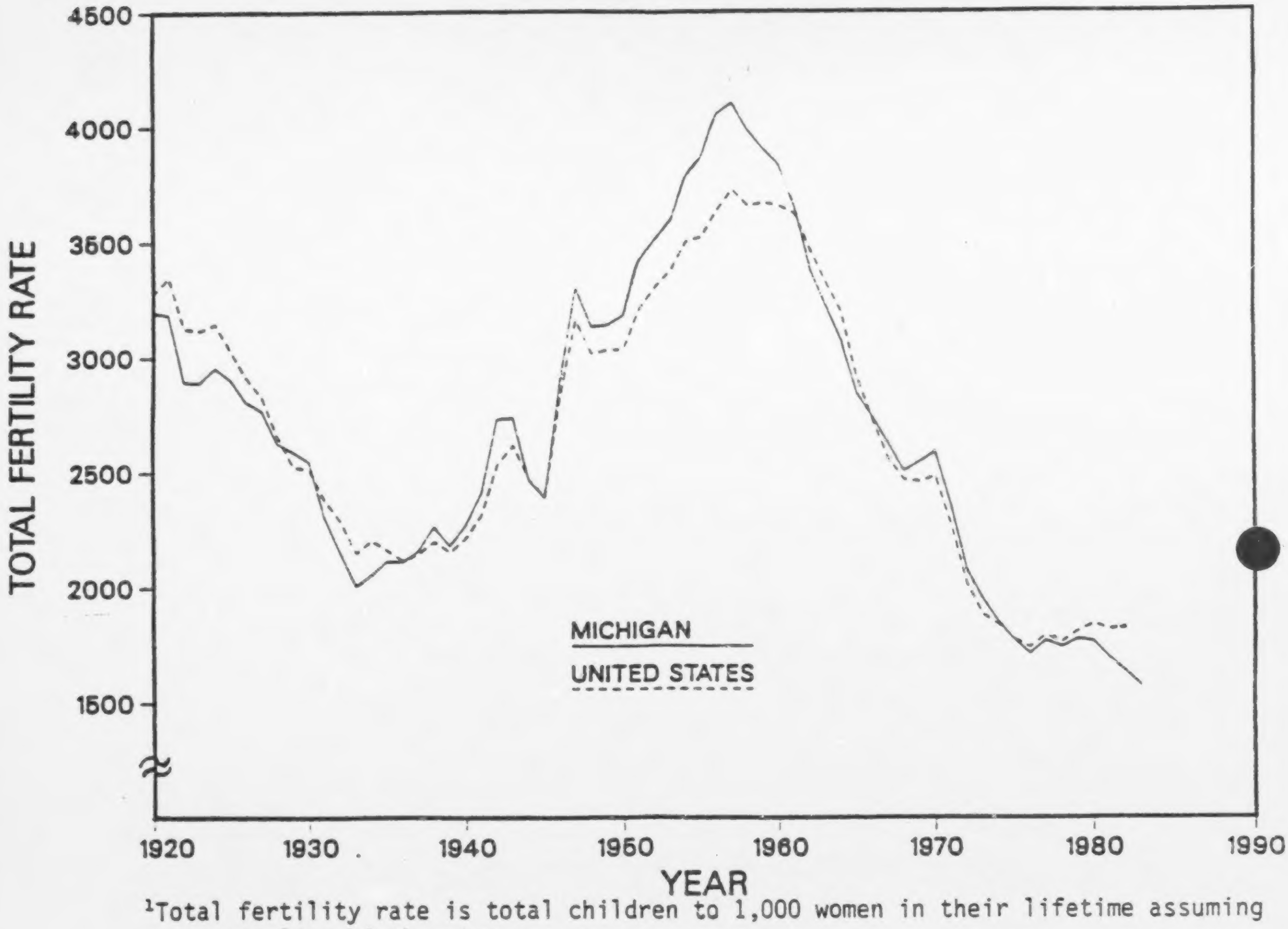
Figure 1.3 displays the changes in the total fertility rate between 1920 and 1983 for Michigan and the United States (see also Table 4.4). The total fertility rate is a hypothetical measure of the number of live births that would occur to each 1,000 women during their reproductive life, if these women experienced the age-specific birth rates observed in a given year. Michigan's total fertility rate has generally paralleled that of the nation. The Michigan rate dropped from 3,195.5 in 1920 to 2,006.5 in 1933 and then increased between 1933 and 1957, reaching 4,100.0 in the latter year. Between 1957 and 1976 the total fertility rate in Michigan declined to a low of 1,709.5 in 1976. The rates for the following four years were slightly higher. In 1983 a new record low total fertility rate (1,568.5) was observed for Michigan. The rate was 1,828.5 in 1982 for the United States.

Since 1973 both Michigan and national total fertility rates have been below 2,000. A total fertility rate of over 2,000 is necessary for replacement of the parents since not all women survive the reproductive years nor do all children survive to adulthood. If the total fertility rate falls below 2,000 for a long period, a natural decrease in population will eventually result. It should be noted that although the total fertility rate has been below 2,000 since 1973 the rate of natural increase for Michigan remains positive. Over the period 1973 through 1983 there were 692,291 persons added to the population of Michigan through the excess of births over deaths.

RACIAL COMPOSITION

The racial composition of live births in Michigan changed over the period 1970 through 1983. Live births of white persons declined from 83.8 percent of all live births in 1970 to 81.2 percent in 1973. Since 1974, this percentage has held between 81.9 and 82.5. In 1983, the percentage was 82.2. Live births of black persons increased from 15.7 percent of the total in 1970 to 18.2 percent in 1973. Between 1973 and 1982 this percent declined to 16.1. Black live births comprised 16.5 percent of all live births in 1983. Live births of all other races increased from 0.4 percent in 1970 to 1.3 percent in 1981 and have held at that level through 1983. It should be noted that Indians from India were classified as white before 1978 and among other races since 1978. In absolute terms, the numbers of births of black and white infants declined between 1970 and 1976, with an especially sharp decline observed in births of white infants between 1970 and 1972. Between 1976 and 1980 the

FIGURE 1.3
TOTAL FERTILITY RATES,[1] MICHIGAN AND UNITED STATES RESIDENTS, 1920-1983[2]



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[1] Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.

[2] 1983 data for the United States are not available.

numbers of live births of white and black infants increased by 10.4 percent and 8.0 percent respectively. In 1981 the number of live births of white, black, Chinese and Filipino infants declined while the number of live births of American Indians and the category other races increased. In 1983, declines occurred across all categories except for American Indian (Table 1.4).

Table 1.5 provides a comparison between crude birth rates and fertility rates for whites and other races in Michigan for the period since 1970. In 1970 the crude birth rate for other than white persons was 44.6 percent above that for whites. By 1972, this percentage had increased to 61.6 percent. In 1974, the percent dropped sharply to 47.5, and by 1982 it had fallen to 22.8. In 1983, this ratio was 24.3 percent. Paralleling the trends in numbers of live births, the crude birth rates for both groups declined between 1970 and 1976. Between 1976 and 1980 the crude birth rate for white persons increased by 10.3 percent, while that for other than white persons remained essentially unchanged. By 1983 the crude birth rates for white and other than white persons declined by 6.7 percent and 12.1 percent,respectively. The crude birth rate for white persons in 1983 was 23.9 percent below that observed in 1970 while the rate for the other than white group was 34.6 percent below the rate for 1970.

The fertility rates contained in Table 1.5 reveal that there are important differences in population structure for white persons compared to those of all other races. By comparing live births to the respective numbers of women aged 15-44 for these two groups, the relative differences in rates decrease. The fertility rate for other than white persons was 33.1 percent above the rate for white persons in 1970 and 17.0 percent higher in 1983. Since 1970 the fertility rate for other than white persons has declined 42.3 percent compared with a 34.3 percent drop for white persons.

AGE OF MOTHER

In 1983 44.3 percent of all live births were to women less than 25 years of age. Only 0.6 percent occurred to women 40 or more years of age. The median age of mothers was 26 years. Mothers of other than white infants were younger (median 24 years) than mothers of white children (median 26 years). Approximately 55 percent of the other than white infants were born to women aged 24 or less compared to 42.0 percent of the white infants. This differential is the result of the relatively large percentage of other than white live births to women at ages below 20 (Table 1.6).

Table 1.4
Live Births by Infant's Race[1] or National Origin, Michigan Residents, 1970-1983

YEAR	TOTAL ALL RACES	WHITE	BLACK	AMER-ICAN INDIAN	CHINESE	FILI-PINO	OTHER[2]
1970	171,667	143,871	26,957	299	151	91	188
1971	162,244	134,165	27,245	313	135	101	177
1972	146,854	119,787	26,215	316	124	109	197
1973	141,550	114,878	25,741	302	124	121	187
1974	137,414	112,474	23,328	270	116	144	244
1975	133,931	109,718	23,224	294	151	138	226
1976	131,378	107,907	22,349	368	169	166	243
1977	138,416	114,042	23,195	431	157	153	276
1978	138,802	114,217	23,025	377	185	148	672
1979	144,452	118,671	24,010	435	150	160	820
1980	145,162	119,103	24,127	481	197	174	891
1981	140,579	115,972	22,705	526	190	140	942
1982	137,950	113,868	22,270	488	191	117	933
1983	133,026	109,335	21,932	490	169	108	902

[1] Births of unknown race included in total only. Persons of Spanish or of Mexican-American descent are included with white.

[2] Includes Japanese, Hawaiian, other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977, and with "Other" since 1978.

Table 1.5
Crude Birth Rates and Fertility Rates by Race[1], Michigan Residents, 1970-1983

CRUDE BIRTH RATE			FERTILITY RATE	
WHITE RACE	ALL OTHER RACES	YEAR	WHITE RACE	ALL OTHER RACES
18.4	26.6	1970	88.0	117.1
17.0	25.9	1971	80.2	112.5
15.1	24.4	1972	70.6	104.5
14.5	23.4	1973	66.7	99.1
14.1	20.8	1974	64.5	87.3
13.8	20.4	1975	62.4	84.6
13.6	19.4	1976	60.7	79.7
14.4	19.7	1977	63.3	80.3
14.4	19.4	1978	62.6	78.5
14.9	19.9	1979	64.2	79.8
15.0	19.8	1980	63.9	79.1
14.6	18.4	1981	61.5	72.6
14.5	17.8	1982	60.2	69.8
14.0	17.4	1983	57.8	67.6
-23.9	-34.6	Percent Change, 1970-1983	-34.3	-42.3

[1] Births of unknown race are excluded.

Table 1.6
Live Births and Percent Distribution by Age of Mother and Race of Child, Michigan Residents, 1983

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Under 15 Years	328	0.2	109	0.1	216	0.9	3	3.3
15-19 Years	16,589	12.5	11,375	10.4	5,199	22.0	15	16.7
20-24 Years	42,034	31.6	34,461	31.5	7,551	32.0	22	24.4
25-29 Years	45,065	33.9	38,791	35.5	6,246	26.5	28	31.1
30-34 Years	22,505	16.9	19,249	17.6	3,240	13.7	16	17.8
35-39 Years	5,669	4.3	4,679	4.3	984	4.2	6	6.7
40 or More Years	829	0.6	664	0.6	165	0.7	-	-
Not Stated	7	0.0	7	0.0	-	-	-	-
Total	133,026	100.0	109,335	100.0	23,601	100.0	90	100.0
Median Age at Last Birthday	26	000	26	000	24	000	25	000

Table 1.7
Live Births and Population of Women by Age
Michigan Residents, 1973 and 1983

AGE GROUP	LIVE BIRTHS			POPULATION ESTIMATES		
	1973	1983	PERCENT CHANGE	1973	1983	PERCENT CHANGE
Under 20 Years[1]	28,377	16,917	-40.4	442,967	437,990	-1.1
20 - 24 Years	51,284	42,034	-18.0	402,191	467,964	+16.4
25 - 29 Years	39,845	45,065	+13.1	336,825	433,305	+28.6
30 - 34 Years	15,520	22,505	+45.0	286,610	388,007	+35.4
35 - 39 Years	5,163	5,669	+9.8	259,306	293,744	+13.3
40 and Over[2]	1,339	829	-38.1	261,184	221,113	-15.3
All Ages[3]	141,550	133,026	-6.0	1,989,083	2,242,123	+12.7

[1] Population shown is for females 15-19.

[2] Population shown is for females 40-44.

[3] Population shown is for females 15-44. Live births with age not stated are included only in the total.

The total number of live births declined by 6.0 percent between 1973 and 1983 (Table 1.7). The largest relative declines in live births occurred to women in the age groups over 39 and under 20. The age groups 20-24 and 35-39 also experienced declines greater than that for women of all ages. The number of live births to women 25-29 was 13.1 percent higher in 1983 than in 1973, while there was a 45.0 percent increase in live births to women 30-34 years of age over the decade.

Table 1.7 also provides the age distribution of the childbearing population in 1973 and 1983. Between these years the number of women aged 15-44 years increased by 12.7 percent. The largest relative increase in population occurred in the age group 30-34, the age group with the greatest increase in live births between 1973 and 1983. The only groups to experience a population decline were those under 20 and those at ages 40-44 years.

AGE-SPECIFIC LIVE BIRTH RATES

As displayed in Table 1.8, a substantial reduction in the age-specific birth rates for Michigan females across all age groups has occurred since 1973. The greatest relative decreases in birth rates between 1973 and 1983 were for women over 40 years of age and for women under age 25 The birth rate for women 30-34 years old in 1983 was 7.0 percent above the rate for this age group in 1973.

Figure 1.4 displays age-specific live birth rates for the period 1970-1983. Birth rates in all age groups dropped between 1970 and 1976. For women under 20 years the birth rate continued to decline throughout the years 1976-1983. Between 1976 and 1980 birth rates for women in the age groups 30-34 and 35-39 increased by 24.5 percent and 9.3 percent respectively. The birth rates for women between 20 and 29 years of age remained stable into the 1980's then declined. In 1983 the birth rate declined from 1982 in all age groups before age 35 and increased in all age groups at 35 or over.

In 1970, women aged 20-24 had the highest birth rate of any age group, 14.3 percent higher than that of women aged 25-29. In 1976 and 1979 through 1983 the birth rate of women in the 25-29 year age group was above that of women aged 20-24. In 1983 the birth rate for the 25-29 year age group was 15.8 percent higher (Table 4.4).

Table 1.8 displays age-specific live birth rates for white women and women of all other races for the years 1973 and 1983. Generally, rates for other than white women were above those for white women. However, the live birth rate for white women between 25 and 29 years exceeded that for

Table 1.8
Age-Specific Live Birth Rates by Race, Michigan Residents, 1973 and 1983

AGE GROUP	RACE[1]								
	TOTAL			WHITE			ALL OTHER[1]		
	1973	1983	PERCENT CHANGE IN RATE	1973	1983	PERCENT CHANGE IN RATE	1973	1983	PERCENT CHANGE IN RATE
Under 20[2] Years	64.1	38.6	-39.8	51.1	31.1	-39.1	146.9	78.6	-46.5
20-24 Years	127.5	89.8	-29.6	121.5	87.3	-28.1	164.0	103.4	-37.0
25-29 Years	118.3	104.0	-12.1	119.3	107.5	-9.9	110.8	86.4	-22.0
30-34 Years	54.2	58.0	+7.0	53.5	59.1	+10.5	58.0	51.9	-10.5
35-39 Years	19.9	19.3	-3.0	18.9	18.6	-1.6	26.6	23.5	-11.7
40 or Over[3]	5.1	3.7	-27.5	4.7	3.5	-25.5	8.2	5.4	-34.1
Total[4]	71.2	59.3	-16.7	66.7	57.8	-13.3	99.1	67.6	-31.8

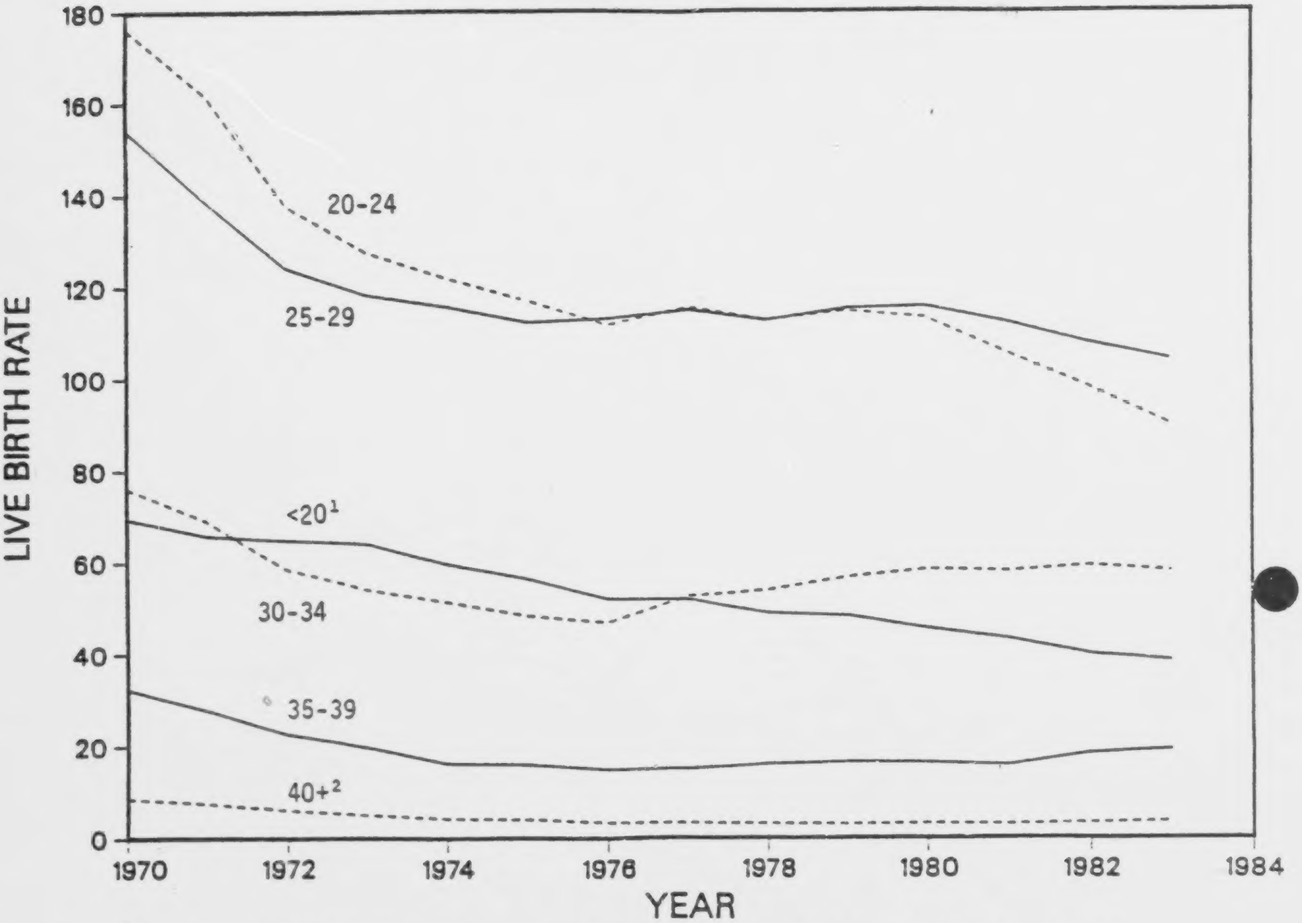
[1] Data on race not stated are included only in the total columns.

[2] Age-specific birth rates for under 20 are based on female population 15-19.

[3] Age-specific birth rates for 40 and over are based on female population 40-44.

[4] Total birth rates (fertility rates) are based on female population 15-44.

FIGURE 1.4
AGE-SPECIFIC LIVE BIRTH RATES, MICHIGAN RESIDENTS, 1970-1983



[1] Based on live births to women under 20 and population of females 15-19.

[2] Based on live births to women 40 or over and population of females 40-44.

other than white women by 7.7 percent and 24.4 percent respectively in 1973 and 1983. In 1983 the rate for white women between 30 and 34 years also exceeded that for their other than white counterparts (by 13.9 percent). Live birth rates declined over these ten years across all ages for both racial categories excepting white women aged 30-34. The largest relative decreases in these rates were experienced by women of both racial groups who were 40 years or older and under 20 years of age.

BIRTH ORDER

The percent of live births which are first order births is displayed in Figure 1.5 for Michigan and the United States for the period since 1960. Between 1960 and 1970, the percent of first order births increased from 22.9 to 37.4 in Michigan and by 1980 the percent had increased to 42.4. The actual number of first births declined by 15.9 percent between 1970 and 1976, then increased between 1976 and 1980 by 13.9 percent. In 1983 the decline in the number of first births (4.6 percent) exceeded the decline in total live births (3.6 percent). The trend in first births has been similar for the United States.

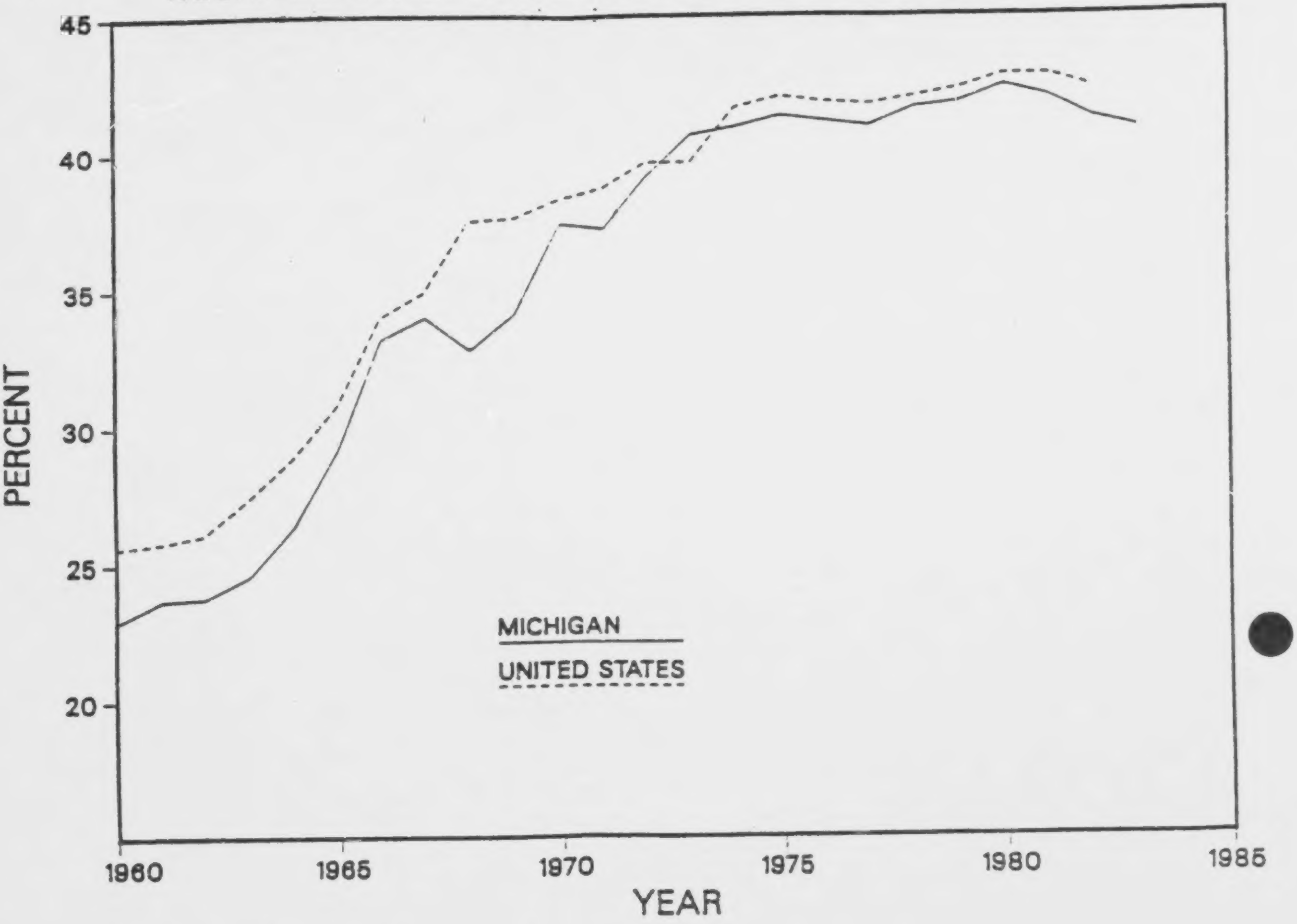
The distribution of Michigan resident live births by live birth order is displayed in Tables 1.10 and 1.11 for the years 1973 and 1983. There has been a considerable shift in recent years toward smaller families. First and second order live births comprised 71.0 percent of all live births in 1973 and 74.0 percent in 1983. On the other hand, 13.8 percent of all live births in 1973 were fourth or higher order live births. In 1983 the figure was 9.4 percent. The greatest relative decline occurred in fifth or higher order live births. These constituted 6.9 percent of all live births in 1973 compared to 3.5 percent in 1983.

Within each age group first and second order births comprised a greater percent of all births in 1983 than in 1973, with the shift increasing with the advancing age of the mother. First and second order births comprised 30.3 percent of all births to women 30-39 years of age in 1973 and 52.4 percent in 1983. Similarly 32.7 percent of all live births to women 25-29 years of age were first births in 1983, compared to 24.5 percent in 1973. While the numbers of births have declined for women under 25 across all birth orders, first and second order births rose at ages 25 and over, and third order births rose at ages 30 and over.

The median age of mothers having their first child increased from 21 to 23 between 1973 and 1983. For mothers having their second child, the median age increased from 24 to 26. The median ages for mothers increased for all birth orders between 1973 and 1983, excepting fifth births or

FIGURE 1.5

FIRST BIRTHS AS A PERCENTAGE OF ALL LIVE BIRTHS, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1983[1]



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[1] 1983 data for the U.S. are not available.

Table 1.9
First Births, Michigan and United States Residents, Selected Years, 1960-1983

UNITED STATES		YEAR	MICHIGAN	
FIRST BIRTHS	PERCENT OF ALL BIRTHS		FIRST BIRTHS	PERCENT OF ALL BIRTHS
1,090,152	25.6	1960	44,711	22.9
1,157,386	30.8	1965	48,660	29.2
1,430,680	38.3	1970	64,222	37.4
1,375,668	38.7	1971	60,413	37.2
1,289,257	39.6	1972	57,477	39.1
1,243,358	39.6	1973	57,411	40.6
1,314,194	41.6	1974	56,233	40.9
1,319,126	42.0	1975	55,348	41.3
1,324,811	41.8	1976	54,003	41.1
1,387,143	41.7	1977	56,622	40.9
1,401,491	42.0	1978	57,767	41.6
1,479,260	42.3	1979	60,424	41.8
1,545,604	42.8	1980	61,516	42.4
1,553,665	42.8	1981	59,105	42.0
---	---	1982	56,879	41.2
---	---	1983	54,271	40.8

Table 1.10
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1973

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	22,592	22,764	9,779	2,191	74	11	57,411	21
Second Birth	4,860	19,505	14,556	4,074	95	4	43,094	24
Third Birth	738	6,455	9,060	4,726	121	2	21,102	26
Fourth Birth	94	1,824	3,929	3,718	187	-	9,752	28
Fifth Birth or Greater	6	588	2,413	5,922	857	3	9,789	33
Not Stated	87	148	108	52	5	2	402	23
All Birth Orders	28,377	51,284	39,845	20,683	1,339	22	141,550	24

Table 1.11
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1983

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	13,567	20,334	14,744	5,542	80	4	54,271	23
Second Birth	2,817	14,930	17,115	9,218	121	3	44,204	26
Third Birth	434	5,017	8,627	7,020	162	-	21,260	28
Fourth Birth	46	1,207	3,003	3,514	133	-	7,903	29
Fifth Birth or Greater	9	351	1,325	2,709	323	-	4,717	32
Not Stated	44	195	251	171	10	-	671	26
All Birth Orders	16,917	42,034	45,065	28,174	829	7	133,026	26

greater.

First births to women 25 years of age or older comprised 21.0 percent of all first births in 1973 and 37.5 percent in 1983. Similarly, second order births to women 25 years or older increased from 43.5 percent of all second order births in 1973 to 59.8 percent in 1983. This change in mother's age at birth is reflective of the emergence of the 25-29 year age group as the group with the highest age-specific birth rate (Table 1.8).

INTERPREGNANCY TIME PERIOD

The distribution of birth spacings was very similar in 1973 and 1983. In each year, about one third of the births to women with prior deliveries occurred one to two years after the most recent pregnancy termination. Another quarter of the births had spacings of two to three years. In both 1973 and 1983 fewer than 4 percent of the births occurred less than a year after the termination of the most recent prior pregnancy (Table 1.12).

In 1983 women having live births whose most recent prior termination was a fetal death had a median time span of 1 year and 10 months between their previous termination and a live birth (Table 1.13). This compares to a median of 2 years 8 months for prior live births. Although 1 to 2 years was the modal time span for both groups, the percent of women with prior fetal deaths in this interval (45.0) was much larger than that for women with prior live births (28.5). The greatest relative difference was associated with time spans of less than one year. A spacing of less than one year was observed for 11.4 percent of all women reporting their most recent prior pregnancy as a fetal death. This compares to 1.6 percent of all women reporting their most recent prior pregnancy as a live birth.

PRENATAL CARE

The most common month of pregnancy in which women first obtain prenatal care is the second month. In 1983 40.5 percent of all women having live births initiated care during the second month. The median number of prenatal visits was twelve, and 61.4 percent of all live births were to women receiving 10-14 prenatal visits. Table 1.14 indicates the relationship between the month of pregnancy prenatal care began and the number of prenatal visits. For births in which the mother began receiving care in the first month, the median number of visits was 13. The median number of visits is lower as prenatal care begins later.

The proportion of live births to women who initially

Table 1.12
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination, Michigan Residents, 1973 and 1983

TIME SPAN IN YEARS	1973		1983	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	85,037	100.0	81,883	100.0
Less Than One	2,976	3.5	2,942	3.6
1 < 2	24,262	28.5	26,047	31.8
2 < 3	22,110	26.0	20,887	25.5
3 < 5	22,009	25.9	18,837	23.0
5 or More . .	13,680	16.1	13,170	16.1
Median . . . Time Span . .	2 Years 8 Months	000	2 Years 6 Months	000

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

Table 1.13
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[2], Michigan Residents, 1983

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	81,883	100.0	16,443	100.0	65,440	100.0
Less Than One	2,942	3.6	1,872	11.4	1,070	1.6
1 < 2	26,047	31.8	7,395	45.0	18,652	28.5
2 < 3	20,887	25.5	2,920	17.8	17,967	27.5
3 < 5	18,837	23.0	2,513	15.3	16,324	24.9
5 or More . .	13,170	16.1	1,743	10.6	11,427	17.5
Median . . . Time Span . .	2 Years 6 Months	000	1 Year 10 Months	000	2 Years 8 Months	000

---

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] Fetal death as defined for the pregnancy history on the birth record is a fetal death of any gestational age.

Table 1.14
Live Births by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1983

MONTH CARE BEGAN	NUMBER OF VISITS								
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN	MEDIAN NUMBER OF VISITS
Total	133,026	980	3,930	26,601	81,646	13,831	3,185	2,853	12
First	18,485	-	134	1,477	12,087	3,672	934	181	13
Second	53,896	-	324	6,264	38,575	6,642	1,438	653	12
Third	34,534	-	414	7,674	22,665	2,656	576	549	11
Fourth	11,787	-	465	4,711	5,651	582	150	228	10
Fifth	5,748	-	519	3,219	1,687	171	54	98	8
Sixth	3,176	-	589	1,845	601	58	20	63	7
Seventh	1,837	-	588	1,004	196	17	5	27	6
Eighth	943	-	572	299	46	8	1	17	4
Ninth	324	-	266	26	15	-	1	16	2
No Care	980	980	-	-	-	-	-	-	-
Unknown	1,316	-	59	82	123	25	6	1,021	10

obtained prenatal care in the first trimester of pregnancy was 80.4 percent in 1983. This percent has increased steadily since 1970 when the figure was 69.0 (Figure 1.6).

There were also small but steady increases in the percent of births to women receiving care prior to the sixth month of pregnancy over the period 1970-1975. In 1970, 86.0 percent of all live births were to women who received care prior to the sixth month of pregnancy. By 1975, this had risen to 91.6 percent. The figure remained at that level through 1981. In 1983, the percent of all women who received care before the sixth month rose to 95.9 percent.

The proportion of births to women receiving early prenatal care varied considerably by race of infant and age of mother (Table 1.15). In 1983, 82.6 percent of white infants compared to 70.3 percent of other than white infants were born to mothers who began their prenatal care in the first trimester. Women 25-29 and 30-34 years of age sought care most promptly, with 86.4 percent and 87.5 percent, respectively, obtaining prenatal care in the first three months. The proportion of births to women receiving early prenatal care declined as maternal age increased or decreased, falling to 75.2 percent for women 40 years or over. Six in 10 (60.1 percent) mothers 15-19 years of age received care early, while only 35.7 percent of mothers under age 15 received care during the first trimester. Similar patterns in this proportion by age of mother are evident for white and other than white infants.

The time prenatal care began varied with live birth order (Table 1.16). The proportion of births to women who began care during the first trimester was highest for second order live births (83.4) and lowest for fifth or higher order births (67.1). Conversely, the proportion of births to women who began care during the third trimester, or received no care, was lowest (2.3 percent) for second order live births. This figure increased with the number of previous live births. Among fifth order live births 7.2 percent were to women who had received no care by the beginning of the 7th month of the pregnancy.

The proportion of births to mothers having ten or more prenatal visits was 74.2 percent in 1983, compared to 70.2 percent in 1980. This statistic varied considerably by race. While mothers of 77.0 percent of white infants had at least ten prenatal visits, the percent was only 61.1 for other than white infants (Table 1.17). The median number of prenatal visits was 12 for mothers of white children and 10 for mothers of other than white children (excluding those having an unknown number of visits). The mean number of prenatal visits was 11.5 for mothers of white infants, 10.6 percent higher than the mean of 10.4 visits for mothers of infants of other races.

FIGURE 1.6
PERCENT OF WOMEN HAVING LIVE BIRTHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1983

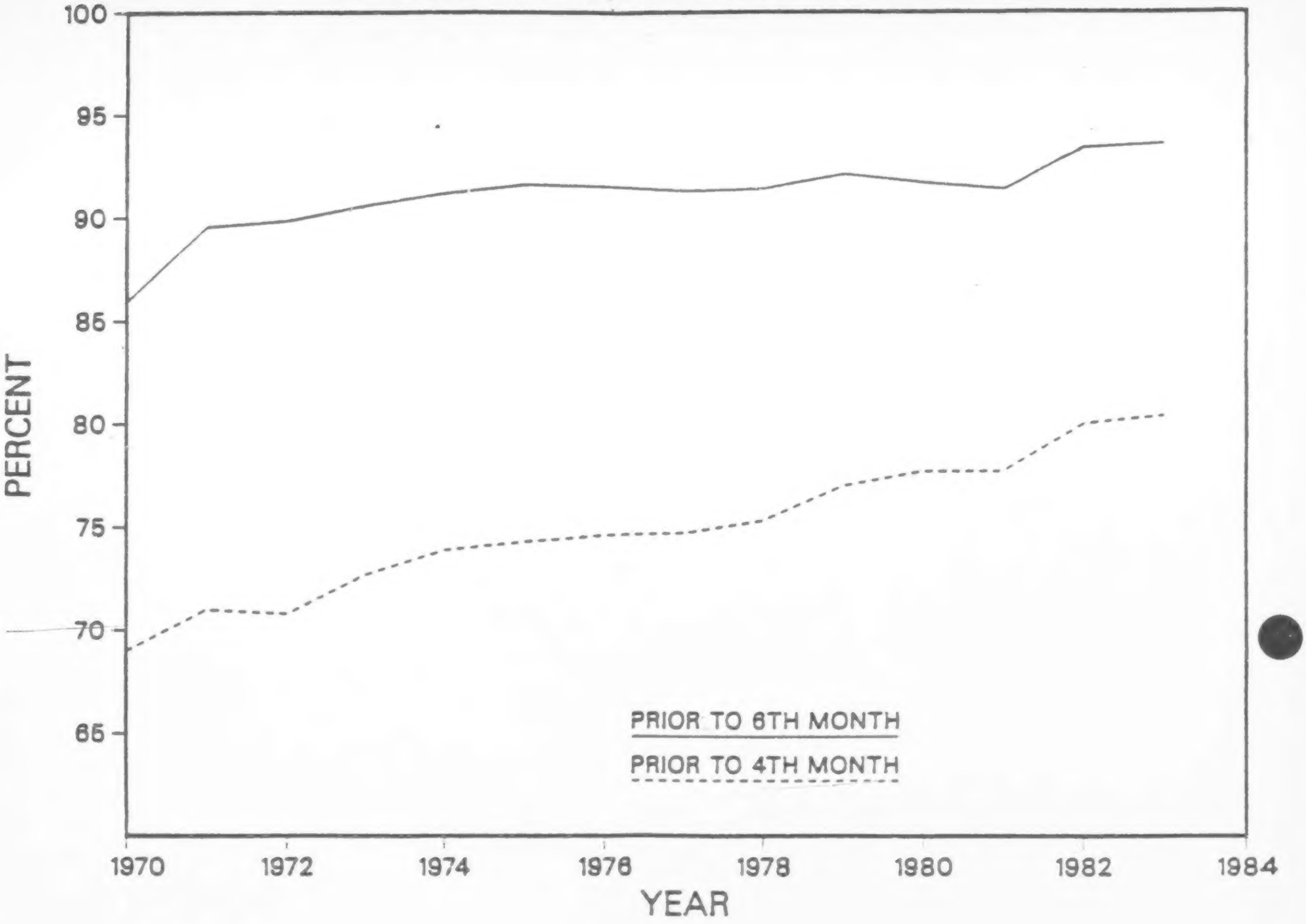


Table 1.15

Numbers and Percents of Live Births with Prenatal Care Beginning in the First Trimester by Age of Mother and Race of Child, Michigan Residents, 1983

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Under 15 Years .	117	35.7	42	38.5	74	34.3	1	*
15-19 Years . .	9,969	60.1	6,957	61.2	3,008	57.9	4	*
20-24 Years . .	32,744	77.9	27,488	79.8	5,250	69.5	6	27.3
25-29 Years . .	38,950	86.4	34,134	88.0	4,809	77.0	7	25.0
30-34 Years . .	19,698	87.5	17,094	88.8	2,599	80.2	5	31.3
35-39 Years . .	4,810	84.8	4,062	86.8	746	75.8	2	*
40 Years or Over	623	75.2	513	77.3	110	70.1	-	*
Not Stated . . .	4	*	4	*	-	*	-	*
Total	106,915	80.4	90,294	82.6	16,596	70.3	25	27.8

[1] Percent denominators obtained from Table 1.6.

Table 1.16
Live Births by Month of Pregnancy Prenatal Care Began and Live Birth Order, Michigan Residents, 1983

MONTH OF PREGNANCY CARE BEGAN	LIVE BIRTH ORDER						
	TOTAL	FIRST	SECOND	THIRD	FOURTH	FIFTH OR GREATER	NOT STATED
1st Month . .	18,485	7,562	6,571	2,854	947	470	81
2nd Month . .	53,896	21,886	18,900	8,557	2,909	1,446	198
3rd Month . .	34,534	13,879	11,402	5,730	2,129	1,248	146
4th Month . .	11,787	4,840	3,566	1,892	830	606	53
5th Month . .	5,748	2,522	1,542	917	414	321	32
6th Month . .	3,176	1.449	805	472	223	210	17
7th Month . .	1,837	785	484	306	137	115	10
8th Month . .	943	408	222	136	80	93	4
9th Month . .	324	122	85	53	28	32	4
No Care . . .	980	353	240	155	120	101	11
Not Stated . .	1,316	465	387	188	86	75	115
Total	133,026	54,271	44,204	21,260	7,903	4,717	671
Percentage Beginning Care in First Trimester . .	80.4	79.8	83.4	80.6	75.7	67.1	63.3
Percentage Without Care During First Six Months . .	3.1	3.1	2.3	3.1	4.6	7.2	4.3

Table 1.17
Live Births and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Child, Michigan Residents, 1983

NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	980	0.7	488	0.4	492	2.1	-	-
1-4	3,930	3.0	2,321	2.1	1,606	6.8	3	3.3
5-9	26,601	20.0	20,021	18.3	6,573	27.9	7	7.8
10-14	81,646	61.4	70,313	64.3	11,314	47.9	19	21.1
15-19	13,831	10.4	11,494	10.5	2,333	9.9	4	4.4
20 or Over	3,185	2.4	2,422	2.2	762	3.2	1	1.1
Not Stated	2,853	2.1	2.276	2.1	521	2.2	56	62.2
Total	133,026	100.0	109,335	100.0	23,601	100.0	90	100.0
Median Number of Visits	12	000	12	000	10	000	11	000
Mean Number of Visits .	11.3	000	11.5	000	10.4	000	10.9	000

In 1983, 980 resident live births or 7.4 of every 1,000 live births occurred with the mother having had no prenatal care. This figure includes only those where it was specified that the mother received no prenatal care. The comparative statistic was 6.6 in 1981 and 12.3 in 1971. Those who received no prenatal care were for the most part younger mothers (median age of 22). Also, the lack of prenatal care is disproportionately high among mothers of other than white infants. The ratio of live births in which the mother received no prenatal care to the total number of live births was roughly five times as large for other than white infants as for white infants in 1983 (Table 1.18).

BIRTH WEIGHT

The mean weight for all live births was 3,359 grams or approximately 7 pounds 6 ounces. The median weight was 3,402 grams or about 7 pounds 8 ounces (Table 1.19).

A subgroup of major importance when analyzing birth weight trends is the category of infants weighing 2,500 grams or less (approximately 5 pounds 8 ounces or less) at birth. Such infants have historically experienced higher mortality in their first year of life than heavier infants. In 1983, 71 of every 1,000 live births weighed 2,500 grams or less (Table 1.20).

The proportion of low birth weight infants varies with the race of the child, the age of the mother, and the amount of prenatal care the mother has received. Note that these three factors are interrelated. Very young mothers and mothers who are not white have fewer prenatal visits; women whose race is not white have higher birth rates in the younger age groups, etc. Tables 1.20 and 1.21 present data on these three variables with respect to birth weight.

The age group with the highest low birth weight ratio (155.5) was the group of mothers under 15 years of age. This ratio was lower for each succeeding age group through age group 25-29 (62.2) then increased for the older age groups to 90.5 for mothers 40 years or older (Table 1.20).

When low birth weight ratios are examined by the number of the mother's prenatal visits even more striking variations are evident. The low birth weight ratio for the highest risk group was roughly seven times that of the group with the lowest ratio. The low birth weight ratio was highest when the mother had no prenatal care at 303.1. The ratio declined as the number of prenatal visits increased through 15-19 visits, where the ratio was 41.6. The low birth weight ratio was 73.2 for mothers with 20 or more prenatal visits. It is likely that a very high number of prenatal visits is associated with problems in the pregnancy

Table 1.18
Live Births with No Prenatal Care by Age of Mother and Race of Child, Michigan Residents, 1983

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]
Under 15 Years . .	15	45.7	3	27.5	12	55.6	-	*
15-19 Years . . .	301	18.1	143	12.6	158	30.4	-	*
20-24 Years . . .	325	7.7	172	5.0	153	20.3	-	*
25-29 Years . . .	191	4.2	86	2.2	105	16.8	-	*
30-39 Years . . .	141	5.0	80	3.3	61	14.4	-	*
40 Years or Over .	7	8.4	4	*	3	*	-	*
Total	980	7.4	488	4.5	492	20.8	-	*
Median Age at Last Birthday	22	000	22	000	22	000	*	000

[1] Ratio per 1,000 live births. Ratio denominators obtained from Table 1.6.

Table 1.19
Live Births by Birth Weight and Race, Michigan Residents, 1983

WEIGHT AT BIRTH	RACE			
	TOTAL	WHITE	ALL OTHER	NOT STATED
500 Grams or Less . .	256	138	116	2
501-1,000 Grams . . .	631	375	253	3
1,001-1,500 Grams . .	818	534	281	3
1,501-2,000 Grams . .	1,748	1,138	606	4
2,001-2,500 Grams . .	5,973	3,945	2,022	6
2,501-3,000 Grams . .	20,888	15,168	5,713	7
3,001-3,500 Grams . .	47,312	38,475	8,811	26
3,501-4,000 Grams . .	39,729	35,118	4,583	28
4,001-4,500 Grams . .	12,868	11,838	1,023	7
4,501 Grams or More .	2,758	2,568	187	3
Not Stated	45	38	6	1
Total	133,026	109,335	23,601	90
Mean Weight in Grams .	3,359.3	3,416.5	3,095.1	3,115.8
Median Weight in Grams	3,402.0	3,440.0	3,147.0	3,374.0

Table 1.20
Low Weight[1] Live Births and Low Birth Weight Ratios by Age of Mother and Race of Child, Michigan Residents, 1983

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
Under 15 Years . .	51	155.5	12	110.1	38	175.9	1	*
15-19 Years . . .	1,692	102.0	933	82.0	752	144.6	7	466.7
20-24 Years . . .	3,021	71.9	1,964	57.0	1,053	139.5	4	*
25-29 Years . . .	2,804	62.2	1,949	50.2	853	136.6	2	*
30-39 Years . . .	1,782	63.2	1,224	51.2	554	131.2	4	*
40 Years or Over .	75	90.5	47	70.8	28	178.3	-	*
Not Stated	1	*	1	*	-	*	-	*
Total	9,426	70.9	6,130	56.1	3,278	138.9	18	200.0
Median Age at Last Birthday	24	000	25	000	23	000	*	000

---

[1] 2,500 grams or less.

[2] Ratio denominators obtained from Table 1.6.

(Table 1.21). For low birth weight infants the median number of the mother's prenatal visits was 9, compared to 12 for all infants. The mean number of visits for mothers of low birth weight infants was 9.2, 18.9 percent less than the mean of 11.3 for mothers of all infants. As low birth weight infants are more likely to have been born prematurely, the shorter prenatal period results in a reduction of the potential length of time for prenatal care.

Other than white infants have a substantially lower mean and median birth weight than white infants (Table 1.19). The low birth weight ratio for other than white infants was 138.9 compared with 56.1 for white infants (Table 1.21). Other than white infants and white infants show similar patterns of rising and falling ratios varying with changes in the age of the mother and frequency of prenatal visits. The low birth weight ratio for other than white infants varied from a high of 384.1 where the mother had no care to a low of 78.7 where the mother had 20 or more visits. The ratio for white infants varied from a high of 221.3 where the mother had no visits to a low of 33.7 where the mother had 15-19 prenatal visits (Table 1.21). Overall, the low birth weight ratio for other than white infants was 2.5 times the ratio for white infants. This is associated with a differential in the proportion of mothers having had fewer than 10 prenatal visits. While 20.8 percent of mothers having white infants had less than 10 prenatal visits, the corresponding figure for mothers having other than white infants was 36.8 percent (Table 1.17).

Examination of Table 1.20 reveals that the ratios for other than white infants vary less than those for white infants. For white infants the ratio associated with mothers under 15 years of age (110.1) is over twice that of mothers in the 25-29 year age group (50.2). For other than white infants the differential between the age groups with the highest and lowest ratios is less than 35 percent.

Figure 1.7 displays the low birth weight ratio for Michigan and the United States over the last twenty-four years. In 1960 this ratio was 72.0 for Michigan. Between 1960 and 1966 the ratio increased, reaching a high for the 22 year period in 1966 (79.8). Since that time the ratio has generally declined. The ratio for 1983 was 70.9, slightly higher than the rate of 69.4 for 1981 and 1982. The pattern for the United States has been similar. The ratio increased from 76.9 in 1960 to 83.9 in 1966, and has since declined. In 1981 the low birth weight ratio for the nation was 68.0. The ratio for the United States was above that for Michigan each year from 1960 through 1970. Since then the ratio for the nation has been the same or lower than that of Michigan.

Table 1.21

Low Weight[1] Live Births and Low Birth Weight Ratios by Number of Prenatal Visits and Race of Child, Michigan Residen[illegible], 1983

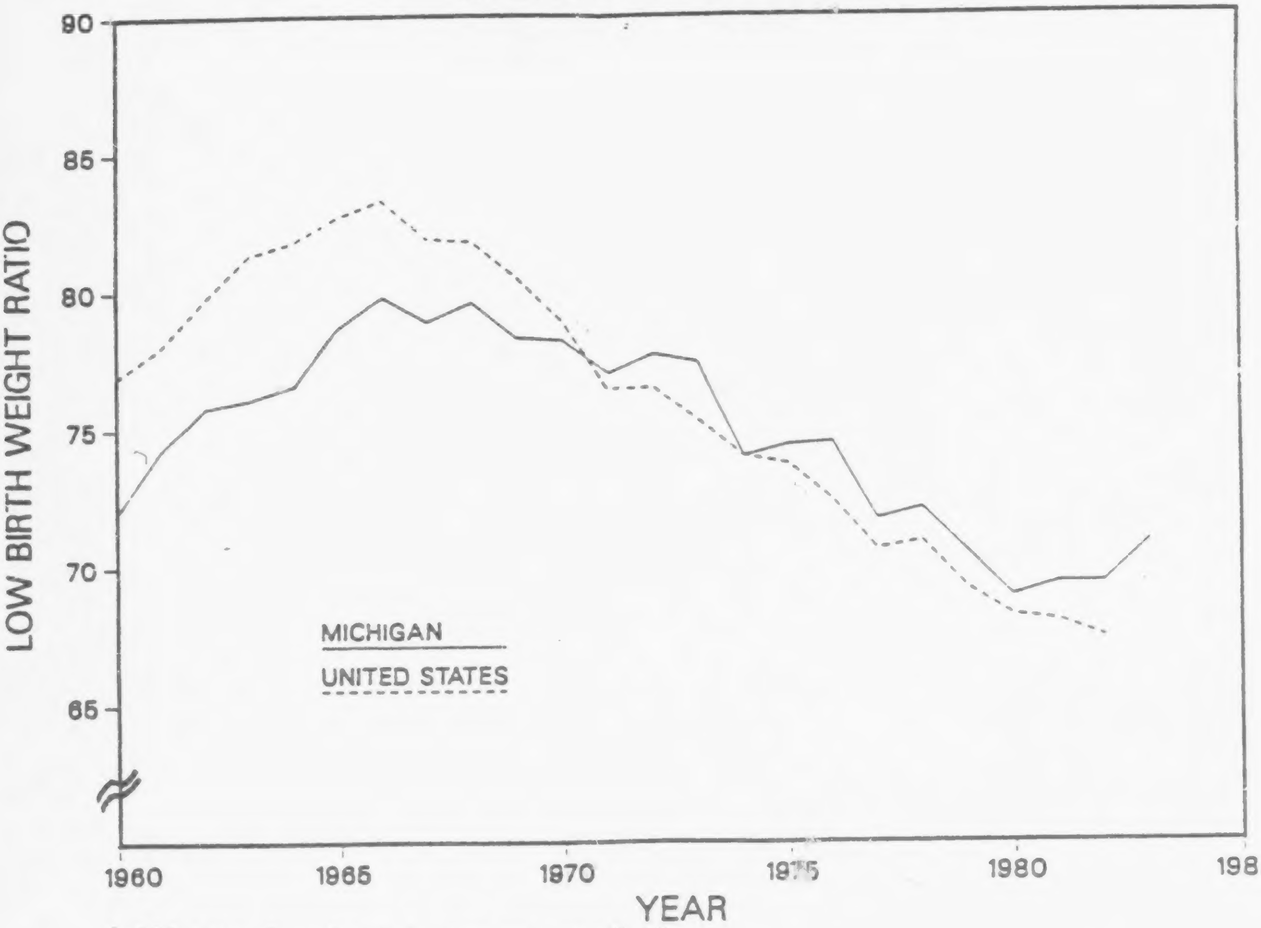
NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
None	297	303.1	108	221.3	189	384.1	-	*
1-4	951	242.0	482	207.7	468	291.4	1	*
5-9	3,521	132.4	2,338	116.8	1,182	179.8	1	*
10-14	3,531	43.2	2,424	34.5	1,105	97.7	2	*
15-19	575	41.6	387	33.7	188	80.6	-	*
20 or Over	233	73.2	173	71.4	60	78.7	-	*
Not Stated	318	111.5	218	95.8	86	165.1	14	250.0
Total	9,426	70.9	6,130	56.1	3,278	138.9	18	200.0
Median Number of Visits	9	000	10	000	8	000	*	000
Mean Number of Visits	9.2	000	9.6	000	8.4	000	*	000

[1] 2500 grams or less.

[2] Ratio denominators obtained from Table 1.17.

FIGURE 1.7

LOW BIRTH WEIGHT RATIO, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1983[1]



[1] 1983 data for the U.S. are not available.

SEX OF INFANT

In 1983 51.5 percent of the infants born to Michigan residents were male. The proportion of males to females varies by race. The number of males per 1,000 females was 1,076 for white infants, 1,001 for blacks, 1,042 for American Indians, and 1,054 for infants of all other races (Table 1.22). For each race the low birth weight ratio for females is higher than for males. The ratio of 78.1 for females of all races is 22.0 percent above the corresponding ratio of 64.0 for males.

MOTHER'S EDUCATION

Educational attainment of women having live births in 1983 varied with their age (Table 1.23). Of all Michigan resident live births in 1983, 19.9 percent were to women who had not completed high school. The majority (62.9 percent) of mothers aged less than 20 had not completed high school. The percent of mothers with fewer than 4 years of high school dropped to 21.6 for those aged 20-24 and to 7.1 for mothers aged 30-34. This percent increased to 10.8 for mothers aged 35-39 and to 17.1 for mothers 40 years or older. Conversely, age of mother varied with the level of education. The median age of the mother was 21 years for those with 1 to 3 years of high school and 30 years for women with 4 or more years of college.

Birth order varies with the mother's education as well as her age. Table 1.24 indicates that although the median age of mothers increases with educational level, the first birth ratio (number of first live births per 100 live births) also varies directly with educational attainment. The first birth ratio for mothers with 4 or more years of college was 43.7 compared to 35.1 for mothers with 8 or fewer years of education. Within each age group there are increases in the first birth ratio as educational level rises beyond the category of 1 to 3 years of high school. For live births to women 20-24 years of age who had completed 4 or more years of college, 82.7 percent were to women with no previous live births, while only 22.8 percent of the live births to women of the same age who had completed the eighth grade or less were first births. Mothers with 1 to 3 years of high school had the lowest or second lowest first birth ratio within each age interval taken separately but the second highest total first birth ratio (42.6). This high overall ratio reflects the fact that a relatively large proportion of births to mothers with 1 to 3 years of high school occurred before the age of 20.

Table 1.22
Live Births, Low Weight Live Births, and Low Birth Weight Ratios, by Sex and Race, Michigan Residents, 1983

RACE	LIVE BIRTHS				LOW WEIGHT LIVE BIRTHS			LOW BIRTH WEIGHT RATIOS		
	TOTAL[1]	MALE	FEMALE	MALES PER 1,000 FEMALES	TOTAL[1]	MALE	FEMALE	TOTAL[1]	MALE	FEMALE
Total	133,026	68,538	64,482	1,063	9,426	4,388	5,035	70.9	64.0	78.1
White	109,335	56,666	52,664	1,076	6,130	2,917	3,211	56.1	51.5	61.0
Black	21,932	10,969	10,962	1,001	3,143	1,400	1,742	143.3	127.6	158.9
American Indian	490	250	240	1,042	46	22	24	93.9	88.0	100.0
Other	1,179	605	574	1,054	89	41	48	75.5	67.8	83.6
Unknown	90	48	42	1,143	18	8	10	200.0	166.7	238.1

[1] Records with sex not stated are included only in total columns.

Table 1.23
Live Births by Age and Education of Mother, Michigan Residents, 1983

AGE OF MOTHER	MOTHER'S EDUCATION							PERCENT WITH AT LEAST HIGH SCHOOL EDUCATION
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE	NOT STATED	
Under 20 Years	16,917	1,070	9,566	5,586	604	4	87	36.6
20-24 Years	42,034	766	8,304	23,478	8,040	1,315	131	78.1
25-29 Years	45,065	564	3,795	20,937	12,246	7,394	129	90.0
30-34 Years	22,505	314	1,277	7,577	6,072	7,206	59	92.7
35-39 Years	5,669	187	428	1,973	1,246	1,813	22	88.8
40 or More Years	829	58	84	314	171	198	4	82.4
Not Stated	7	-	-	4	2	1	-	100.0
Total	133,026	2,959	23,454	59,869	28,381	17,931	432	79.8
Median Age at Last Birthday	26	22	21	25	27	30	24	000

Table 1.24
First Birth Ratios[1] by Age and Education of Mother, Michigan Residents, 1983

AGE OF MOTHER	MOTHER'S EDUCATION					
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE
Under 20 Years	80.2	72.0	77.2	85.8	90.7	*
20-24 Years	48.4	22.8	25.8	50.1	63.6	82.7
25-29 Years	32.7	11.0	9.5	27.0	36.8	55.8
30-34 Years	21.1	4.1	6.8	15.4	20.4	31.0
35 or More Years	13.4	7.3	4.1	11.5	12.2	19.5
Total	40.8	35.1	42.6	39.5	40.8	43.7

[1] First live births per 100 live births. Births where the mother's age and/or education are not stated are included in the total but are not reallocated to specific age and education categories.

CONGENITAL ANOMALIES

One or more congenital anomalies were reported for 1,059 of the 133,026 resident live births in 1983 (Table 1.25). This translates to a rate of 79.6 per 10,000 live births.

In 1979 the 9th Revision of the International Classification of Diseases was introduced for the coding of reported congenital anomalies. Care should be exercised in making comparisons between the reported incidences of specific types of anomalies for years during which different revisions of the ICD were used to classify anomalies. In addition the frequency of reporting of specific anomalies is affected by the reporting schedule. Many conditions may not be apparent at the time the birth certificate is completed and filed.

The most frequently reported categories were ICD 754, certain congenital musculoskeletal deformities (including clubfoot), and ICD 755, other congenital anomalies of limbs (excluding those classified to 754), with 123 and 272 anomalies, respectively. When these categories are combined with the category 756, other congenital musculoskeletal anomalies, the total number of musculoskeletal system anomalies reported increases to 466, or 44.0 percent of all anomalies reported.

Congenital anomaly rates by age of mother and race of child are presented in Table 1.26. The rates for all races combined increased with the age of the mother. The highest rates were experienced by mothers 40 years or over. The rates for ages below 35 were similar in 1983. Congenital anomaly rates for other than white infants were above those for white infants in all age groups. The overall rate for white infants was 72.8 compared to 111.4 for infants of other races.

Figure 1.8 displays the rate of reported congenital anomalies for Michigan resident live births over the period 1960-1983. The rate has exhibited a cyclical pattern over this time period. The rate rose from 88.4 per ten thousand live births in 1960 to 120.6 in 1963. By 1970 the rate had returned to the level of 1960 (88.3). The rate then rose to 100.8 in 1973. Since 1973 the rate has declined by 24.1 percent. The rate of 79.6 for 1983 is slightly above the rate of 76.5 for 1982.

COMPLICATIONS

The numbers of deliveries with specific types of complications reported are shown in Table 1.27. These data represent entries in three boxes on the live birth

Table 1.25
Congenital Anomalies[1] Reported by Type of Anomaly, Michigan Residents, 1983

TYPE OF ANOMALY	ICD[3] NUMBER	NUMBER OF CONDITIONS[4]	RATE PER 10,000 LIVE BIRTHS
Other congenital anomalies of limbs	755	272	20.4
Congenital anomalies of genital organs	752	124	9.3
Certain congenital musculoskeletal deformities	754	123	9.2
Cleft palate and cleft lip	749	104	7.8
Congenital anomalies of the integument	757	86	6.5
Other congenital musculoskeletal anomalies	756	71	5.3
Other congenital anomalies of nervous system	742	57	4.3
Chromosomal anomalies	758	54	4.1
Other congenital anomalies of heart	746	52	3.9
Other and unspecified congenital anomalies	759	41	3.1
Congenital anomalies of ear, face and neck	744	36	2.7
Spina bifida	741	34	2.6
Congenital anomalies of eye	743	31	2.3
Other congenital anomalies of digestive system	751	29	2.2
Other congenital anomalies of circulatory system	747	28	2.1
Anencephalus and similar anomalies	740	22	1.7
Congenital anomalies of urinary system	753	19	1.4
Other congenital anomalies of upper alimentary tract	750	17	1.3
Congenital anomalies of respiratory system	748	17	1.3
Bulbus cordis anomalies and anomalies of cardiac septal closure	745	13	1.0
At Least One Anomaly[2]		1,059	79.6

[1] Indicates anomalies apparent soon after a live birth.

[2] Does not equal the sum of anomalies specified because of multiple anomaly occurrences.

[3] Ninth Revision International Classification of Diseases, WHO.

[4] Includes three digit duplicates if fourth digit is different, permitting total counting of distinct conditions.

FIGURE 1.8
INCIDENCE OF CONGENITAL ANOMALIES REPORTED
PER 10,000 LIVE BIRTHS, MICHIGAN RESIDENTS, 1960-1983

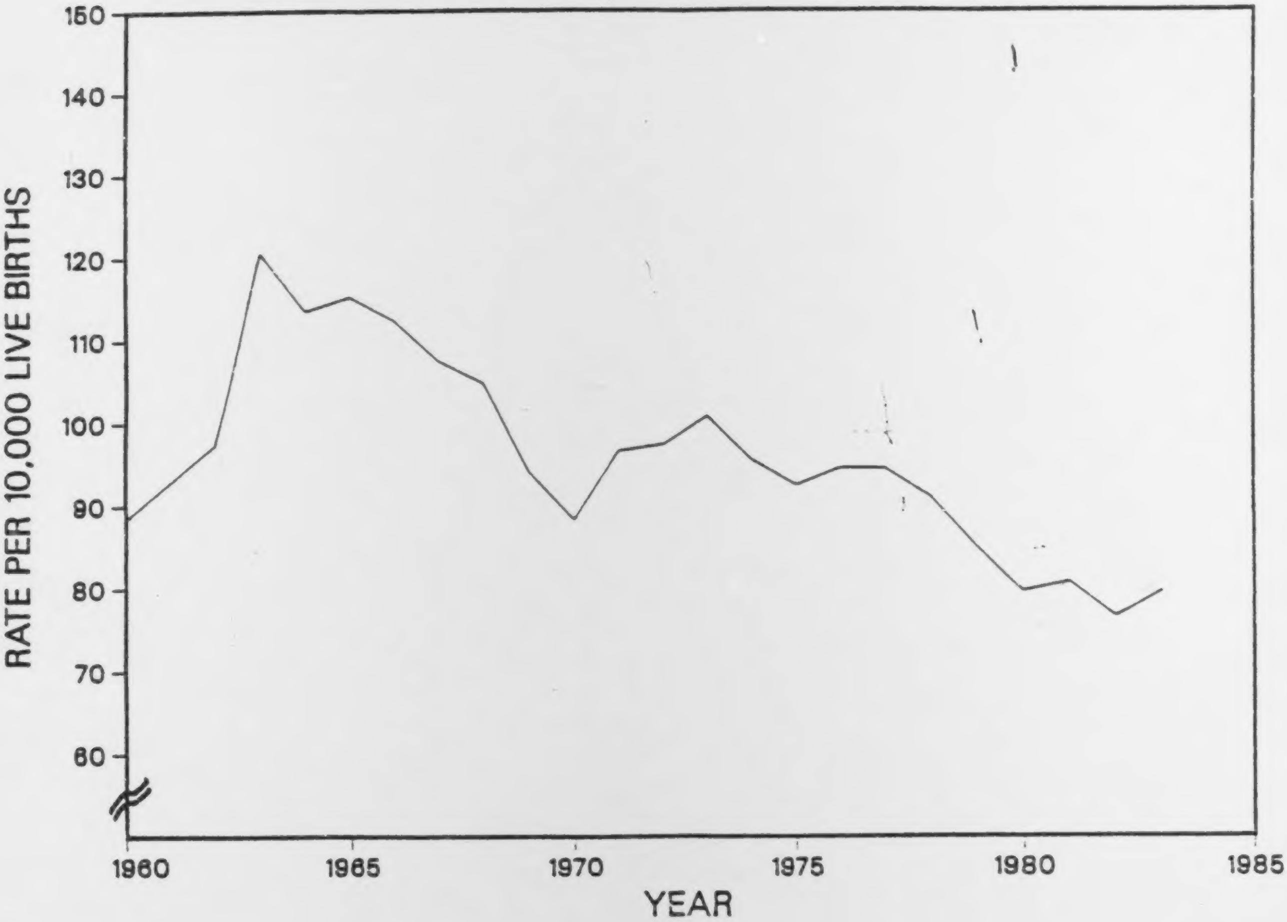


Table 1.26
Live Births with Congenital Anomalies Reported and Congenital Anomaly Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1983

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
Under 15 Years	1	*	-	*	1	*	-	*
15-19 Years	142	85.6	85	74.7	57	109.6	-	*
20-24 Years	344	81.8	262	76.0	82	108.6	-	*
25-29 Years	336	74.6	262	67.5	74	118.5	-	*
30-34 Years	173	76.9	140	72.7	33	101.9	-	*
35-39 Years	53	93.5	40	85.5	13	132.1	-	*
40 Years or Over	10	120.6	7	105.4	3	*	-	*
Total	1,059	79.6	796	72.8	263	111.4	-	*
Median Age at Last Birthday	25	000	25	000	24	000	*	000

[1] Number of live births with congenital anomalies reported per 10,000 live births.
[2] Rate denominators obtained from Table 1.6.

certificate: complications of pregnancy, concurrent illnesses or conditions affecting this pregnancy, and complications of labor and/or delivery. It is important to note that these items are under-reported on the birth certificate. Some conditions or procedures, such as obstetrical operations, may be routinely performed by some physicians, and hence not be considered "complications". In addition to valid complications there are also inappropriate terms entered, such as "prematurity", "spontaneous delivery", or "home delivery". These inappropriate terms were omitted in the tabulations of complications shown in Tables 1.27 and 1.28. The total number of deliveries with one or more valid complications was 37,270. This is a rate of 28.0 per 100 live births.

It should be noted that in some cases the code used to describe the complication is dependent on the box in which the entry is found, while in other cases the same code is given regardless of the box used. An example of the latter situation is chronic hypertension, which is shown in Table 1.27 under the heading "Concurrent illnesses or conditions affecting this pregnancy" regardless of the box in which it was entered on the birth certificate. Thus, there were 7,695 deliveries (578.5 per 10,000 live births) with one or more entries which were coded to the various categories under the heading "Concurrent illnesses or conditions affecting this pregnancy", while the number of births with one or more entries in the box bearing this title on the birth certificate was only 5,414 (407.0 per 10,000 live births). This latter figure is more comparable to the rate of 308.2 reported for 1978, as prior to 1979 specific types of complications were not coded and tabulated. Rates presented for "Concurrent illnesses or conditions affecting this pregnancy", "Complications of pregnancy", and "Complications of labor and/or delivery" were derived from the numbers of records with entries in these boxes.

Among the most commonly reported maternal conditions not directly related to the pregnancy were chronic hypertensive disease, diabetes mellitus, and previous Cesarean sections, which were reported 1,247, 903, and 2,334 times, respectively, in 1983. Toxemia of pregnancy was reported for 2,087 deliveries (156.9 per 10,000). The most common form was pre-eclampsia of pregnancy, which was reported 108.2 times per 10,000 deliveries. Various forms of difficult labor were reported in approximately 7 percent of all deliveries. There were 1,426 deliveries complicated by conditions of the placenta and fetal membranes, and 3,458 by conditions of the umbilical cord. Premature rupture of membranes was reported for 3,217 deliveries. There were 16,911 deliveries reported as Cesarean sections. It should be noted that the type of delivery is not a question on the birth certificate, so that the rate of 1,271.3 Cesarean sections per 10,000 deliveries undoubtedly understates the

Table 1.27
Live Births with Specific Types of Complications Reported, Michigan Residents, 1983

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Concurrent illnesses or conditions affecting this pregnancy	7,695	578.5
Chronic circulatory and genitourinary diseases in mother	1,909	143.5
Chronic rheumatic heart disease	74	5.6
Chronic hypertensive disease	1,247	93.7
Other chronic diseases and congenital anomalies of heart and circulatory system	181	13.6
Chronic diseases of genitourinary system	434	32.6
Other maternal conditions	6,063	455.8
Syphilis	4	*
Gonorrhea and other VD, excluding syphilis	441	33.2
Diabetes mellitus	903	67.9
Influenza	22	1.7
Rubella	2	*
Injury	36	2.7
Prior operations (excluding previous cesarean section)	133	10.0
Previous cesarean section	2,334	175.5
Narcotic or drug user	304	22.9
Obesity	152	11.4
Hepatitis	24	1.8
Anemia	151	11.4
Pneumonia	35	2.6
Bronchitis	40	3.0
Emphysema	1	*
Epilepsy	91	6.8
Asthma	159	12.0
Alcohol Abuse	32	2.4
Overdose of Aspirin	1	*
All other maternal conditions	1,093	82.2
Unknown type of maternal condition	352	26.5
Toxemia of pregnancy	2,087	156.9
Hypertensive disease arising during pregnancy	43	3.2
Pre-eclampsia of pregnancy	1,440	108.2
Eclampsia of pregnancy	54	4.1
Hyperemesis gravidarum	114	8.6
Toxemia superimposed on pre-existing hypertensive cardiovascular disease	93	7.0

Table 1.27 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Other and unspecified toxemia of pregnancy	517	38.9
Maternal ante- and intrapartum infection	725	54.5
Infections of genital tract	146	11.0
Pyelitis and pyelonephritis	30	2.3
Other infections of urinary tract	262	19.7
Infections of amniotic fluid	133	10.0
Other infections	179	13.5
Difficult labor with disproportion or abnormality of organs and tissues of the pelvis	3,789	284.8
Difficult labor with malposition of fetus	3,930	295.4
Breech presentation	2,783	209.2
Transverse presentation	228	17.1
Brow presentation	42	3.2
Face presentation	81	6.1
Compound or shoulder presentation	64	4.8
Other specified presentation	325	24.4
Unspecified presentation	438	32.9
Difficult labor with abnormality of forces of labor	985	74.0
Primary uterine inertia	238	17.9
Secondary uterine inertia	169	12.7
Prolonged second stage	181	13.6
Precipitate birth	322	24.2
Other and unspecified abnormality of forces of labor	80	6.0
Other and unspecified difficult labor	947	71.2
Laceration of pelvic organs	647	48.6
Conditions of placenta and fetal membranes	1,426	107.2
Placenta previa - partial	384	28.9
Placenta previa - complete	29	2.2
Premature separation of placenta - partial	697	52.4
Premature separation of placenta - complete	11	0.8
Placental insufficiency	52	3.9
Delivery complicated by retained placenta	252	18.9

Table 1.27 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Other and unspecified abnormalities of placenta and fetal membranes	47	3.5
Conditions of umbilical cord	3,458	259.9
Other complications of pregnancy and childbirth	10,336	777.0
Incompetent cervix	286	21.5
Premature rupture of membranes	3,217	241.8
Hydramnios	120	9.0
Ectopic pregnancy	1	*
Abortion - any type	8	0.6
Destructive operation on live fetus to facilitate birth	15	1.1
Multiple pregnancy	1,109	83.4
Hemorrhage or threatened abortion	730	54.9
RH incompatibility	235	17.7
Anemia of pregnancy	196	14.7
All other complications of pregnancy and childbirth	4,846	364.3
Unknown type of complication of pregnancy and childbirth	365	27.4
Obstetrical operations	19,266	1,448.3
Antepartum obstetrical procedures	76	5.7
Operations inducing labor or assisting delivery	2,154	161.9
Cesarean section	16,911	1,271.3
Operations after delivery or abortion	1,196	89.9
At least one complication	37,270	2,801.7

[1] Sum of subcategories may not equal total for category due to the occurrences of multiple complications.

Table 1.28
Live Births with Complications Reported and Complication Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1983

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
Under 15 Years . .	81	24.7	28	25.7	52	24.1	1	*
15-19 Years . . .	4,520	27.2	3,050	26.8	1,463	28.1	7	46.7
20-24 Years . . .	11,411	27.1	9,115	26.5	2,294	30.4	2	*
25-29 Years . . .	12,386	27.5	10,306	26.6	2,078	33.3	2	*
30-34 Years . . .	6,663	29.6	5,469	28.4	1,192	36.8	2	*
35-39 Years . . .	1,877	33.1	1,464	31.3	412	41.9	1	*
40 Years or Over .	328	39.6	254	38.3	74	47.1	-	*
Unknown	4	*	4	*	-	*	-	*
Total	37,270	28.0	29,690	27.2	7,565	32.1	15	16.7
Median Age at Last Birthday	25	000	26	000	24	000	*	000

[1] Number of live births with complications reported per 100 live births.

[2] Rate denominators obtained from Table 1.6.

true rate.

In 1982 new codes were introduced for specific types of maternal conditions which had previously been lumped in the category "all other maternal conditions". The conditions which were coded for the first time in 1982 were pneumonia, bronchitis, emphysema, epilepsy, asthma, alcohol abuse, and overdose of aspirin. If these conditions had been included in the category "all other maternal conditions", the total in 1983 for this category would have been 1,452.

The distribution of deliveries with complications reported by age of mother and race of infant is shown in Table 1.28. The rates were similar for mothers under age 30. Older mothers were more likely to experience complications. The rate increased from 27.5 percent for mothers 25-29 years to 39.6 percent for mothers 40 years or over. The median age of mothers for births with complications reported was 25 years, the same as for all live births. Similar patterns of variation by age of mother were observed for white and other than white infants. The rate for other than white infants was higher than for white infants in all age groups except under 15 years. Overall the rate for other than white infants was about 20 percent higher (32.1 compared to 27.2).

PLACE OF OCCURRENCE

Of some confusion to persons not familiar with vital records data is the difference between occurrence and residence figures. Information on events to residents of Michigan that occur throughout the country and, in some instances, outside its boundaries is collected in order to obtain the full scope of activity for the state population. In 1983 1,731 Michigan resident live births occurred outside the state. Information on these events is forwarded to the state of Michigan for statistical purposes only. While only 1.3 percent of the total for the state is involved, statistics for the counties on Michigan's southern and northwestern borders would be strongly affected were this information not available.

Table 1.29 shows the four major geographic areas where Michigan resident live births occur outside the state. These four border areas comprise 90.2 percent of all resident live births that occurred out of state. Live births to Michigan residents occurred in 36 of the 50 states in 1983 and in the District of Columbia.

The number of nonresident live births that occurred in Michigan in 1983 was 543. Information about those events was shared with the appropriate states by the State of Michigan under specific confidentiality guidelines so they might have a complete statistical file on their residents. The border areas comprised 65.9 percent of these events, as shown in Table 1.29. There were live births in Michigan to residents of 35 states and at least 4 foreign countries.

PLACE OF BIRTH

In 1983 99.37 percent of the 131,838 infants born in Michigan were delivered in hospitals. There were 670 infants born at home, and 158 other non-hospital deliveries (Table 1.30). While the percentage of infants not born in hospitals is still very small, the number of home deliveries and other out-of-hospital births has increased in recent years. Between 1973 and 1982 the number of infants born at home increased by 150 percent. The proportion of all live-born infants who were delivered at home increased from 0.20 percent in 1973 to 0.52 percent in 1982 (160 percent increase). The information for 1983 indicates a decline in the number of home births but not in the proportion of all births that are home births.

ATTENDANT AT BIRTH

Data in Table 1.31 reveal that 99.3 percent of the live births which occurred in Michigan were attended by a physician, either an M.D. or D.O. There were 259 live births attended by the mother's husband, while nurses delivered 104 infants and midwives and nurse-midwives delivered 319 babies. During 1983 there were 80 infants born to unattended women.

Of the 670 infants born in the mother's home only 11.9 percent were attended by a physician, while an 35.5 percent were attended by the husband.

Table 1.29
Michigan Resident Live Births Occurring Outside of Michigan by Place of Occurrence, and Live Births Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1983

GEOGRAPHIC AREA	LIVE BIRTHS TO RESIDENTS OCCURRING OUTSIDE MICHIGAN		LIVE BIRTHS TO NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total . . .	1,731	100.0	543	100.0
Florida . .	16	0.9	49	9.0
Illinois .	20	1.2	22	4.1
Indiana . .	490	28.3	109	20.1
Ohio . . .	621	35.9	52	9.6
Texas . . .	9	0.5	47	8.7
Wisconsin .	406	23.5	171	31.5
Canada . .	46	2.7	26	4.8
Other Areas	123	7.1	67	12.3

Table 1.30
Live Births by Place of Delivery, Michigan Occurrences, 1973-1983

YEAR	PLACE OF DELIVERY						
	TOTAL	HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1973	140,359	139,983	99.73	282	0.20	94	0.07
1974	136,418	136,049	99.73	282	0.21	87	0.06
1975	132,777	132,354	99.68	313	0.24	110	0.08
1976	130,253	129,714	99.59	375	0.29	164	0.13
1977	137,140	136,503	99.54	489	0.36	148	0.11
1978	137,896	137,119	99.44	573	0.42	204	0.15
1979	143,240	142,437	99.44	619	0.43	184	0.13
1980	144,077	143,257	99.43	645	0.45	175	0.12
1981	139,415	138,604	99.42	646	0.46	165	0.12
1982	137,127	136,236	99.35	707	0.52	184	0.13
1983	131,838	131,010	99.37	670	0.51	158	0.12

[1] Does not include births in hospitals without a maternity ward.

Table 1.31
Live Births by Place of Delivery and Type of Attendant, Michigan Occurrences, 1983

ATTENDANT	PLACE OF DELIVERY							
	TOTAL		HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	131,838	100.0	131,010	100.0	670	100.0	158	100.0
Physician, M.D.	112,486	85.3	112,375	85.8	57	8.5	54	34.2
Physician, D.O.	18,428	14.0	18,386	14.0	23	3.4	19	12.0
Husband	259	0.2	1	0.0	238	35.5	20	12.7
Nurse	104	0.1	98	0.1	4	0.6	2	1.3
Midwife	171	0.1	4	0.0	154	23.0	13	8.2
Physician's Asst.	12	0.0	12	0.0	-	-	-	-
Nurse-Midwife[2]	148	0.1	126	0.1	18	2.7	4	2.5
Other	147	0.1	8	0.0	108	16.1	31	19.6
Unattended	80	0.1	-	-	67	10.0	13	8.2
Unknown	3	0.0	-	-	1	0.1	2	1.3

[1] Does not include births in hospitals without a maternity ward.

[2] May or may not be certified by the American College of Nurse Midwives.

FETAL DEATHS

There were 1,325 fetal deaths reported in 1900. The number of reported fetal deaths increased from 1900 through 1916 and by 1916 there were 3,689 reported fetal deaths (Figure 1.9). The numbers of such deaths were relatively stable from 1916 through 1930, with the peak year for the period being 1927. This year marked the highest frequency of occurrence in this century with 3,834 fetal deaths. Over the period 1930 through 1939, fetal deaths declined to 2,572. Fetal deaths then increased through 1943, decreased in 1944 and 1945, and increased again to 3,422 in 1947. Fetal deaths numbered between 3,000 and 3,250 in the period 1948 to 1958. In the 1960's and 70's the number of reported fetal deaths declined sharply. By 1976, the number fell to 1,264. The frequency in 1976 established a new low for this century. After a slight increase in 1977 (1,284) new lows have been recorded in each of the following six years including 1983. The number of Michigan resident fetal deaths was 843 in 1983.

The fetal death ratio for Michigan has declined through most of the twentieth century (Figure 1.10 and Table 4.2). The ratio rose from 30.3 in 1900 to 43.5 in 1905. Through the teens and early twenties, this ratio fluctuated between 38 and 42, never reaching the peak ratio observed in 1905. In 1922, Michigan's fetal death ratio was 42.0. The year 1922 marks a turning point, as fetal death ratios have generally declined since this year. The low ratio of 1900 was first succeeded by a new low ratio in 1936 (29.7). Over the next 45 years, new lows have been established repeatedly, as the fetal death ratio continues to decline. The ratio in 1983 was 6.3, the lowest observed in this century.

National fetal death data are presented in Figure 1.10 and Table 1.32. Michigan's fetal death ratios have generally been below national ratios. In fact, the United States ratio has been below that for Michigan in only nine of the 57 years for which national data are available. The last time the United States ratio was below the Michigan ratio was in 1950. In 1979, the Michigan ratio was 8.1 percent below the national ratio of 13.8. It should be noted that fetal deaths in Michigan are comprised of stillbirths that have passed through 20 weeks gestation or which weigh 400 grams or more. This definition is different from that of some states.

CAUSES OF FETAL DEATH

A classification of fetal deaths by underlying cause of death is contained in Table 1.33. This classification is based on the 9th Revision of the International

FIGURE 1.9
FETAL DEATHS, MICHIGAN RESIDENTS, 1900-1983

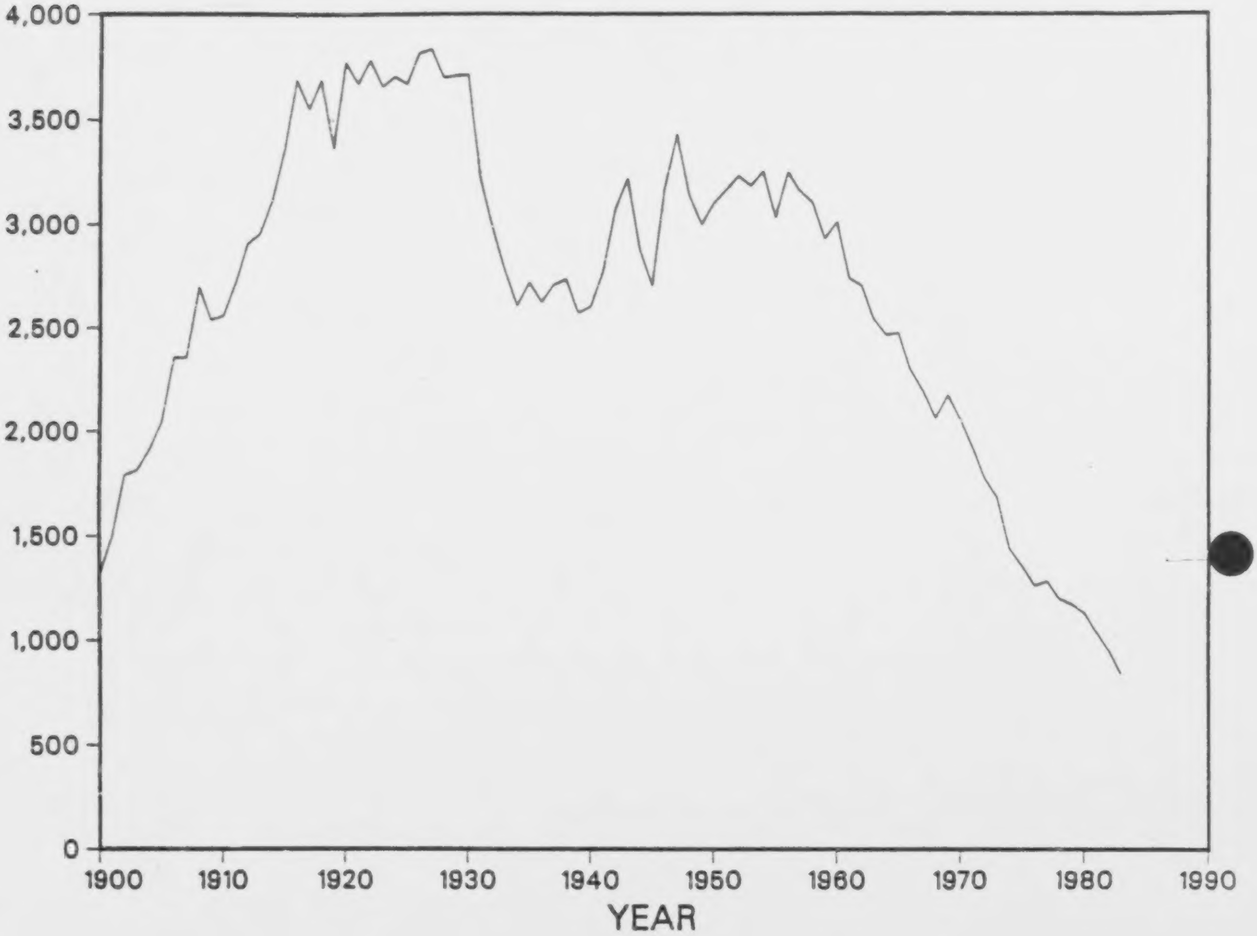
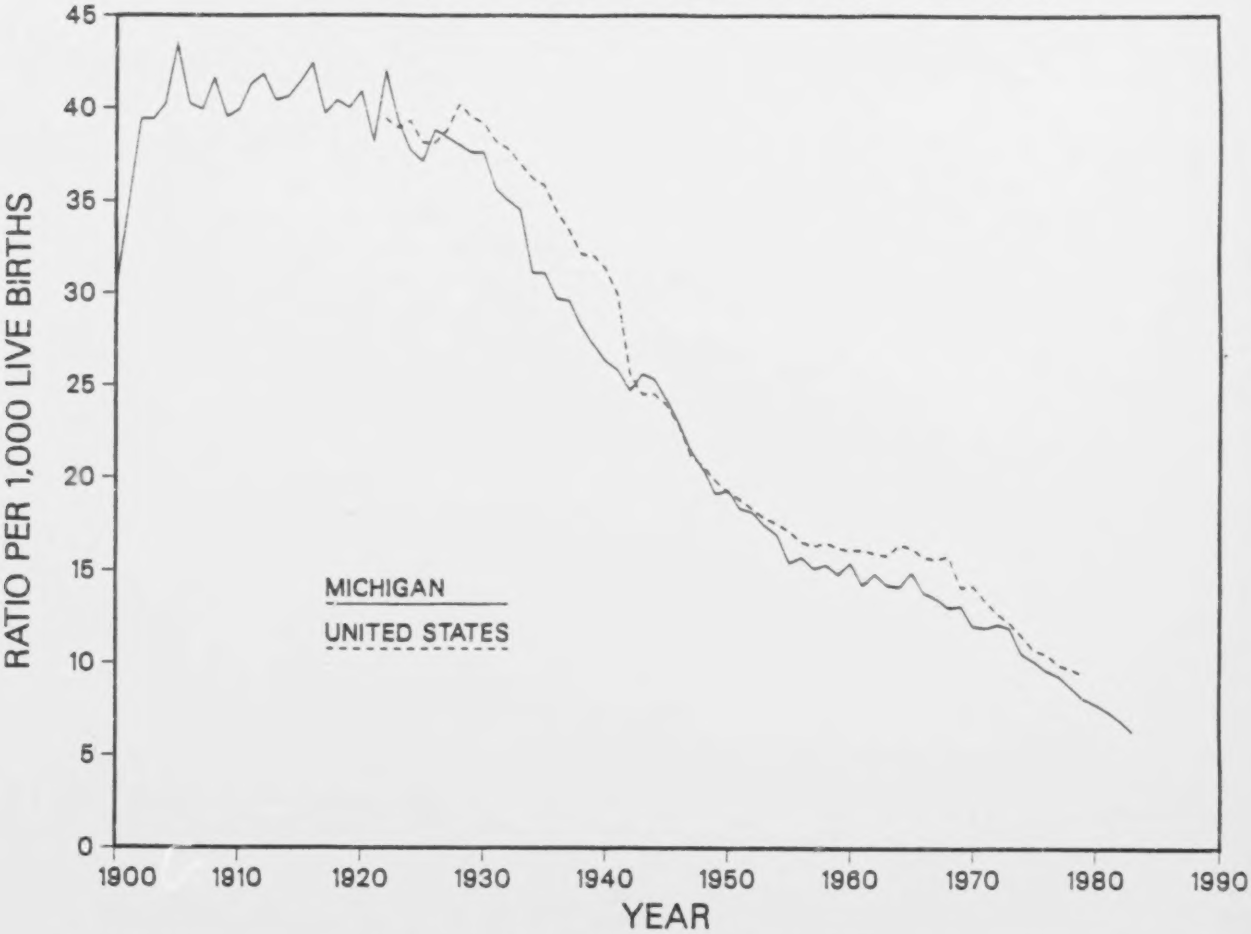


FIGURE 1.10
FETAL DEATH RATIOS, MICHIGAN RESIDENTS, 1900-1983, AND UNITED STATES RESIDENTS, 1922-1979[1]



[1] U.S. ratios prior to 1933 are for registration areas only. U.S. ratios are based on three different definitions of fetal death:

1) prior to 1942 - all reported fetal deaths regardless of period of gestation
2) 1942-1968 - fetal deaths with gestational age 20 weeks or more or not stated
3) 1969-current - fetal deaths of stated or presumed period of gestation of 20 or more weeks

Table 1.32
Fetal Deaths and Fetal Death Ratios, Michigan and United States Residents, 1900-1983

UNITED STATES		YEAR	MICHIGAN	
FETAL DEATHS	FETAL DEATH RATIOS		FETAL DEATHS	FETAL DEATH RATIOS
---	---	1900	1,325	30.3
---	---	1910	2,559	39.9
70,010[1]	39.4	1920	3,770	40.9
86,466	39.2	1930	3,714	37.6
73,802	31.3	1940	2,602	26.3
68,262	19.2	1950	3,095	19.3
68,480	16.1	1960	3,008	15.4
52,961	14.2	1970	2,060	12.0
47,818	13.4	1971	1,923	11.9
41,380	12.7	1972	1,765	12.0
38,309	12.2	1973	1,682	11.9
36,281	11.5	1974	1,438	10.5
33,796	10.7	1975	1,356	10.1
33,111	10.5	1976	1,264	9.6
33,053	9.9	1977	1,284	9.3
32,301	9.7	1978	1,201	8.7
32,969	9.4	1979	1,175	8.1
---	---	1980	1,135	7.8
---	---	1981	1,040	7.4
---	---	1982	953	6.9
---	---	1983	843	6.3

[1] Data for 1922.

Table 1.33
Fetal Deaths and Fetal Death Ratios by Underlying Cause of Death, Michigan Residents, 1983

ICD No.[1]	CAUSE OF DEATH	FREQUENCY	RATIO[2]
740	Anencephalus and similar anomalies	11	8.3
742	Other congenital anomalies of nervous system	6	4.5
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	4	3.0
746	Other congenital anomalies of heart	2	1.5
747	Other congenital anomalies of circulatory system	1	0.8
751	Other congenital anomalies of digestive system	1	0.8
753	Congenital anomalies of urinary system	5	3.8
756	Other congenital musculoskeletal anomalies	3	2.3
758	Chromosomal anomalies	6	4.5
759	Other and unspecified congenital anomalies	15	11.3
740-759	All congenital anomalies combined	54	40.6
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	46	34.6
761	Fetus or newborn affected by maternal complications of pregnancy	88	66.2
762	Fetus or newborn affected by complications of placenta, cord, and membranes	352	264.6
763	Fetus or newborn affected by other complications of labor and delivery	4	3.0
764	Slow fetal growth and fetal malnutrition	10	7.5
765	Disorders relating to short gestation and unspecified low birthweight	33	24.8
766	Disorders relating to long gestation and high birthweight	1	0.8
767	Birth trauma	2	1.5
768	Intrauterine hypoxia and birth asphyxia	48	36.1
770	Other respiratory conditions of fetus and newborn	4	3.0
771	Infections specific to the perinatal period	4	3.0
772	Fetal and neonatal hemorrhage	5	3.8
773	Hemolytic disease of fetus or newborn, due to isoimmunization	3	2.3
775	Endocrine and metabolic disturbances specific to the fetus and newborn	8	6.0
776	Hematological disorders of fetus and newborn	1	0.8
778	Conditions involving the integument and temperature regulation of fetus and newborn	2	1.5
779	Other and ill-defined conditions originating in the perinatal period	178	133.8
740-779	All Causes	843	633.7

[1] Ninth Revision of the International Classification of Diseases, WHO.
[2] Ratios per 100,000 resident live births.

Classification of Diseases which was introduced in 1979. Since major changes were made between the 8th and 9th revisions of the ICD in the section used for classifying causes of fetal death, comparisons between cause-specific ratios for 1979 and later years and those for years prior to 1979 require detailed study. Also, since a relatively large number of deaths are allocated to unspecified causes, caution should be exercised in attempting to draw specific inferences regarding causes of death.

In 1983, 178 of the total 843 deaths were assigned to the category of "Other and ill-defined conditions originating in the perinatal period" Half (52.9 percent) of the remaining fetal deaths for which a cause was stated were attributed to complications of placenta, cord, and membranes (ICD 762). This is a group of maternal conditions which includes placenta previa, premature separation of the placenta, placental hemorrhage, and compression of the umbilical cord. Second in frequency was the category maternal complications of pregnancy (ICD 761), which was listed as the cause of 88 fetal deaths. This includes such complications as premature rupture of membranes, multiple pregnancy, and incompetent cervix. There were an additional 46 deaths caused by maternal conditions which may be unrelated to the pregnancy. There were 54 fetal deaths caused by congenital anomalies in 1983.

AGE OF MOTHER AND RACE OF FETUS

It appears that the younger, the older, and other than white mothers have a greater risk of delivering a stillborn fetus. The rates of fetal loss for mothers under 20 years of age, 40 years of age or greater, and for the other than white fetus are higher than those for other groups (Table 1.34).

The overall fetal death rate per 1,000 total births (live births plus fetal deaths) was 6.3 in 1983. An association of maternal age with fetal death rates is apparent from Table 1.34. The 25-29 year age group displayed the lowest rate. Progressively older and younger age groups displayed increasingly higher rates. The rate for women 15-19 (7.2) was 33.3 percent higher than the rate for women 25-29 years of age (5.4). The highest rate was experienced by women over 40, for whom the rate (17.8) was 3.3 times the rate for women in the lowest risk age group. The median age of women whose pregnancy resulted in a fetal death was 25 years, compared to 26 years for women having live births.

In 1983 the fetal death rate for white fetuses was 5.9 while the fetal death rate for other races was 33.9 percent higher at 7.9. Rates for other than white fetuses were

Table 1.34
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Age of Mother and Race of Fetus, Michigan Residents, 1983

AGE OF MOTHER AND RACE OF FETUS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Under 15 Years . .	5	328	333	15.0
White	2	109	111	*
Other Than White	3	216	219	*
Not Stated . . .	-	3	3	000
15-19 Years . . .	121	16,589	16,710	7.2
White	82	11,375	11,457	7.2
Other Than White	39	5,199	5,238	7.4
Not Stated . . .	-	15	15	000
20-24 Years . . .	258	42,034	42,292	6.1
White	200	34,461	34,661	5.8
Other Than White	55	7,551	7,606	7.2
Not Stated . . .	3	22	25	000
25-29 Years . . .	246	45,065	45,311	5.4
White	197	38,791	38,988	5.1
Other Than White	48	6,246	6,294	7.6
Not Stated . . .	1	28	29	000
30-39 Years . . .	193	28,174	28,367	6.8
White	154	23,928	24,082	6.4
Other Than White	38	4,224	4,262	8.9
Not Stated . . .	1	22	23	000
40 or Over	15	829	844	17.8
White	12	664	676	17.8
Other Than White	2	165	167	*
Not Stated . . .	1	-	1	000
Not Stated	5	7	12	000
White	2	7	9	000
Other Than White	3	-	3	000
Not Stated . . .	-	-	-	000
Total	843	133,026	133,869	6.3
White	649	109,335	109,984	5.9
Other Than White	188	23,601	23,789	7.9
Not Stated . . .	6	90	96	000

higher than for white fetuses in all age intervals with sufficient events to calculate rates. The differentials ranged from 2.8 percent for women aged 15 through 19 to 67.1 percent for women aged 25-29.

INTERPREGNANCY TIME PERIOD FOR FETAL DEATHS

For those women whose pregnancy terminated with a fetal death in 1983, a total of 405 reported the date of the termination of a previous pregnancy. Table 1.35 presents a comparison of fetal death rates by interpregnancy time span for births in 1983 to women who reported the date of a prior termination. The minimum risk was associated with spacings of between 2 and 3 years (3.5 fetal deaths per 1,000 total births). The risk increased progressively as the length of spacings decreased or increased. The fetal death rate for births with spacings of five or more years was 88.6 percent above the rate of the minimum risk category. The greatest risk of fetal death was associated with spacings of less than one year. For births in this category the fetal death rate (12.8) was 3.7 times the rate for the minimum risk category. When comparing interpregnancy time spans for live births and fetal deaths one should be aware that the shorter gestational period associated with fetal deaths results in a correspondingly shorter interpregnancy time span.

The median interpregnancy time period for fetal deaths was 2 years and 6 months, as was the case for women having live births in 1983.

Table 1.36 indicates that, as with live births (Table 1.13), the outcome of the immediate prior termination has a strong influence on the interval between pregnancies. For 121 women whose prior termination was a fetal death, the median interpregnancy time span was 1 year and 9 months. For 284 women whose prior termination was a live birth, the median interpregnancy time span was 2 years and 9 months.

The median interpregnancy time span for fetal deaths has been declining since 1977. In 1977 the median was 2 years and 11 months for fetal deaths. By 1982 the median had declined 17.1 percent, to 2 years and 5 months. This span rose during 1983 to 2 years and 6 months while the span for live births held steady. For live births the decline was 9.1 percent, from 2 years and 9 months in 1977 to 2 years and 6 months in 1982 and 1983.

PRENATAL CARE - FETAL DEATHS

Of the 843 fetal deaths reported for 1983, 45 or 5.3 percent of the reports indicated that the mother had no prenatal visits. The comparable percent for live births was

Table 1.35
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Interpregnancy Time Span, Michigan Residents Reporting Prior Pregnancy Terminations[1], 1983

TIME SPAN IN YEARS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Total	405	81,883	82,288	4.9
Less Than One	38	2,942	2,980	12.8
1 < 2	127	26,047	26,174	4.9
2 < 3	74	20,887	20,961	3.5
3 < 5	79	18,837	18,916	4.2
5 or More	87	13,170	13,257	6.6

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

Table 1.36
Fetal Deaths[1] to Women Reporting Prior Pregnancy Terminations[2] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[3], Michigan Residents, 1983

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH[3]		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	405	100.0	121	100.0	284	100.0
Less Than One .	38	9.4	23	19.0	15	5.3
1 < 2	127	31.4	48	39.7	79	27.8
2 < 3	74	18.3	15	12.4	59	20.8
3 < 5	79	19.5	27	22.3	52	18.3
5 or More . . .	87	21.5	8	6.6	79	27.8
Median Time Span	2 yrs. 6 mos.	000	1 yr. 9 mos.	000	2 yrs. 9 mos.	000

[1] Deaths of fetuses of twenty or more weeks gestation or weighing 400 grams or more.

[2] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[3] Fetal death as defined for the pregnancy history on the fetal death record is a fetal death of any gestational age.

0.7. The percent of mothers with fewer than ten prenatal visits was 62.8 for fetal deaths and 23.7 for live births (Table 1.17 and Table 1.37).

The number of prenatal visits varied by race (Table 1.37). Mothers of white fetuses had a mean of 7.9 visits whereas those of other than white fetuses reported a mean of 6.1 visits. Note, however, that the number of prenatal visits was not stated on 5.7 percent of the reports for white fetuses and 14.4 percent of the reports for other than white fetuses.

The fetal death rate varied with the number of prenatal visits (Table 1.38). The rate was 43.9 for mothers with no care, 38.2 for mothers with 1-4 visits, and 12.2 for those with 5-9 visits. The fetal death rate was lowest for mothers with 10-14 visits (2.4), and increased to 3.2 and 3.1 for mothers with 15-19 and 20 or more visits, respectively.

Fetal death rates for white and other than white fetuses exhibited similar patterns of association with the number of prenatal visits (Table 1.38). The overall fetal death rate for other than white fetuses was 33.9 percent higher than for white fetuses. However, the differential by race was not apparent within prenatal care categories. The fetal death rates for white fetuses were, in fact, generally higher than those for other than white fetuses as prenatal visits are taken into account.

Caution should be exercised in interpreting the above fetal death rates and proportions. Incomplete reporting of the number of visits occurred on 7.8 percent of the fetal death reports compared with 2.1 percent of the live birth records. It should also be kept in mind that fetal deaths are much more likely to occur preterm and this affects the possible number of prenatal visits (Table 1.39). In 1983 28.7 percent of the reported fetal deaths occurred before 28 weeks of gestational age, and 56.1 percent occurred before 36 weeks. Incomplete reporting of gestational age occurred on an additional 8.4 percent of the fetal death reports.

The month of pregnancy that prenatal care began was most frequently the second month (Table 1.40). The proportion of all fetal deaths that were to women who reported receiving care prior to the fourth month of pregnancy was 72.8 with 88.0 percent receiving care prior to the sixth month. From 1970 through 1973 there were increases in the percentage of fetal deaths in which the mother received care prior to the fourth and sixth month. These percentages declined between 1973 and 1976, and increased between 1976 and 1983 (Figure 1.11).

Table 1.37
Fetal Deaths and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Fetus, Michigan Residents, 1983

NUMBER OF PRENATAL VISITS	RACE OF FETUS							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	45	5.3	26	4.0	19	10.1	-	-
1-4	156	18.5	109	16.8	47	25.0	-	-
5-9	329	39.0	270	41.6	57	30.3	2	33.3
10-14	193	22.9	160	24.7	31	16.5	2	33.3
15-19	44	5.2	39	6.0	5	2.7	-	-
20 or Over	10	1.2	8	1.2	2	1.1	-	-
Not Stated	66	7.8	37	5.7	27	14.4	2	33.3
Total	843	100.0	649	100.0	188	100.0	6	100.0
Median Number of Visits	7	000	7	000	5	000	*	000
Mean Number of Visits .	7.5	000	7.9	000	6.1	000	*	000

Table 1.38
Fetal Deaths, Total Births and Fetal Death Rates by Number of Prenatal Visits and Race[1]
Michigan Residents, 1983

NUMBER OF VISITS	ALL BIRTHS			WHITE BIRTHS			ALL OTHER BIRTHS		
	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES
Total	843	133,869	6.3	649	109,984	5.9	188	23,789	7.9
None	45	1,025	43.9	26	514	50.6	19	511	37.2
1-4	156	4,086	38.2	109	2,430	44.9	47	1,653	28.4
5-9	329	26,930	12.2	270	20,291	13.3	57	6,630	8.6
10-14	193	81,839	2.4	160	70,473	2.3	31	11,345	2.7
15-19	44	13,875	3.2	39	11,533	3.4	5	2,338	2.1
20 or Over	10	3,195	3.1	8	2,430	3.3	2	764	*
Not Stated	66	2,919	22.6	37	2,313	16.0	27	548	49.3

[1] Race not stated included in total columns only.

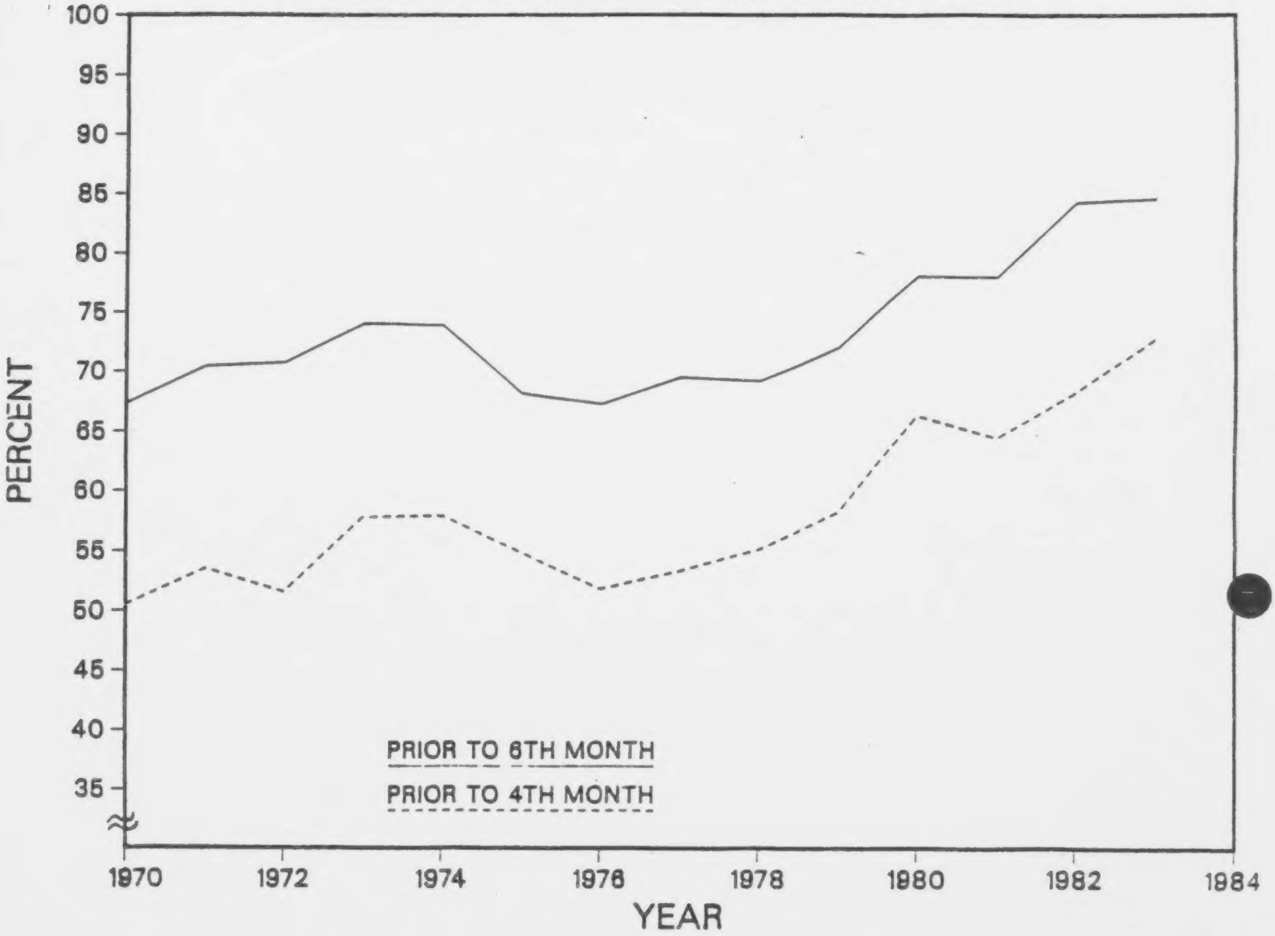
Table 1.39
Fetal Deaths by Gestational Age and Number of Prenatal Visits, Michigan Residents, 1983

GESTATIONAL AGE IN COMPLETED WEEKS	NUMBER	PERCENT	MEDIAN NUMBER OF VISITS
Under 20	19	2.3	3
20-23	112	13.3	4
24-27	111	13.2	5
28-31	116	13.8	6
32-35	115	13.6	7
36-39	172	20.4	10
40-43	112	13.3	12
44 or More	15	1.8	14
Unknown	71	8.4	4
Total	843	100.0	7

Table 1.40
Fetal Deaths by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1983

MONTH CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN
Total	843	45	156	329	193	44	10	66
First	94	-	11	36	33	10	1	3
Second	312	-	49	146	86	16	6	9
Third	208	-	42	97	47	17	1	4
Fourth	67	-	21	25	15	1	-	5
Fifth	33	-	14	11	4	-	1	3
Sixth	28	-	13	10	4	-	1	-
Seventh	5	-	3	1	-	-	-	1
Eighth	2	-	-	1	1	-	-	-
Ninth	2	-	1	1	-	-	-	-
No Care	45	45	-	-	-	-	-	-
Unknown	47	-	2	1	3	-	-	41

FIGURE 1.11
PERCENT OF WOMEN HAVING FETAL DEATHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND THE 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1983



FETAL WEIGHT

Among live births, the percent of infants weighing 2,500 grams or less at birth was 7.1. The comparable percent among fetal deaths was 71.5. The distribution of fetal weight by plurality for fetal deaths is presented in Table 1.41. Note that twin and triplet deliveries are not sets, but are total occurrences and that any given set may have included live births. The percent of single delivery fetal deaths under 2,501 grams was 70.5. The comparable percent for twin deliveries was 83.1.

The fetal weight distribution is strongly associated with gestational age (Table 1.42). The median fetal weight for all fetal deaths was 1,360 grams compared to a median birthweight of 3,402 grams for live births. For deaths of fetuses of 32-35 weeks age, the median was 1,673 grams, while for the normal gestational age range of 36-39 weeks the median weight was only 2,608 grams.

Table 1.41
Fetal Deaths by Fetal Weight and Plurality
Michigan Residents, 1983

WEIGHT	FETAL DEATHS	CUM. PERCENT	SINGLE DELIVERY	TWIN DELIVERY	TRIPLET DELIVERY
500 Grams or Less .	158	18.7	135	18	5
501-1,000 Grams . .	176	39.6	169	7	-
1,001-1,500 Grams .	100	51.5	92	8	-
1,501-2,000 Grams .	89	62.0	81	8	-
2,001-2,500 Grams .	80	71.5	72	8	-
2,501-3,000 Grams .	93	82.6	88	5	-
3,001-3,500 Grams .	68	90.6	66	2	-
3,501-4,000 Grams .	44	95.8	44	-	-
4,001-4,500 Grams .	13	97.4	13	-	-
4,501 Grams or More	3	97.7	3	-	-
Not Stated	19	100.0	16	3	-
Total	843	100.0	779	59	5

Table 1.42
Fetal Deaths by Fetal Weight and Gestational Age, Michigan Residents, 1983

FETAL WEIGHT IN GRAMS	GESTATIONAL AGE IN COMPLETED WEEKS									
	TOTAL	UNDER 20	20-23	24-27	28-31	32-35	36-39	40-43	44 OR MORE	UNKNOWN
Less Than 1501	434	16	107	105	90	44	16	7	1	48
1501-2500	169	1	-	2	19	50	62	19	3	13
2501 or Over	221	-	1	-	5	17	92	86	11	9
Unknown	19	2	4	4	2	4	2	-	-	1
Total	843	19	112	111	116	115	172	112	15	71
Median[1]	1360	320	420	652	950	1673	2608	3061	3005	860

[1] Excluding unknown fetal weight.

MORTALITY

SECTION II

MORTALITY: AN OVERVIEW, 1983

RESIDENT DEATHS	76,639
CRUDE DEATH RATE	8.4
INFANT DEATHS	1,573
INFANT DEATH RATE	11.8
NEONATAL DEATHS	1067
NEONATAL DEATH RATE	8.0
PERINATAL DEATHS	1,753
PERINATAL DEATH RATE	13.1
MATERNAL DEATHS	6
MATERNAL DEATH RATE	0.5
DEATHS FROM HEART DISEASE PER DAY	83
DEATHS FROM CANCER PER DAY	46
DEATHS FROM STROKE PER DAY	16
DEATHS FROM ACCIDENTS PER DAY	8
MEDIAN AGE AT DEATH	72 YEARS
MEDIAN AGE AT DEATH FOR MALES	70 YEARS
MEDIAN AGE AT DEATH FOR FEMALES	76 YEARS

MORTALITY: AN OVERVIEW 1983

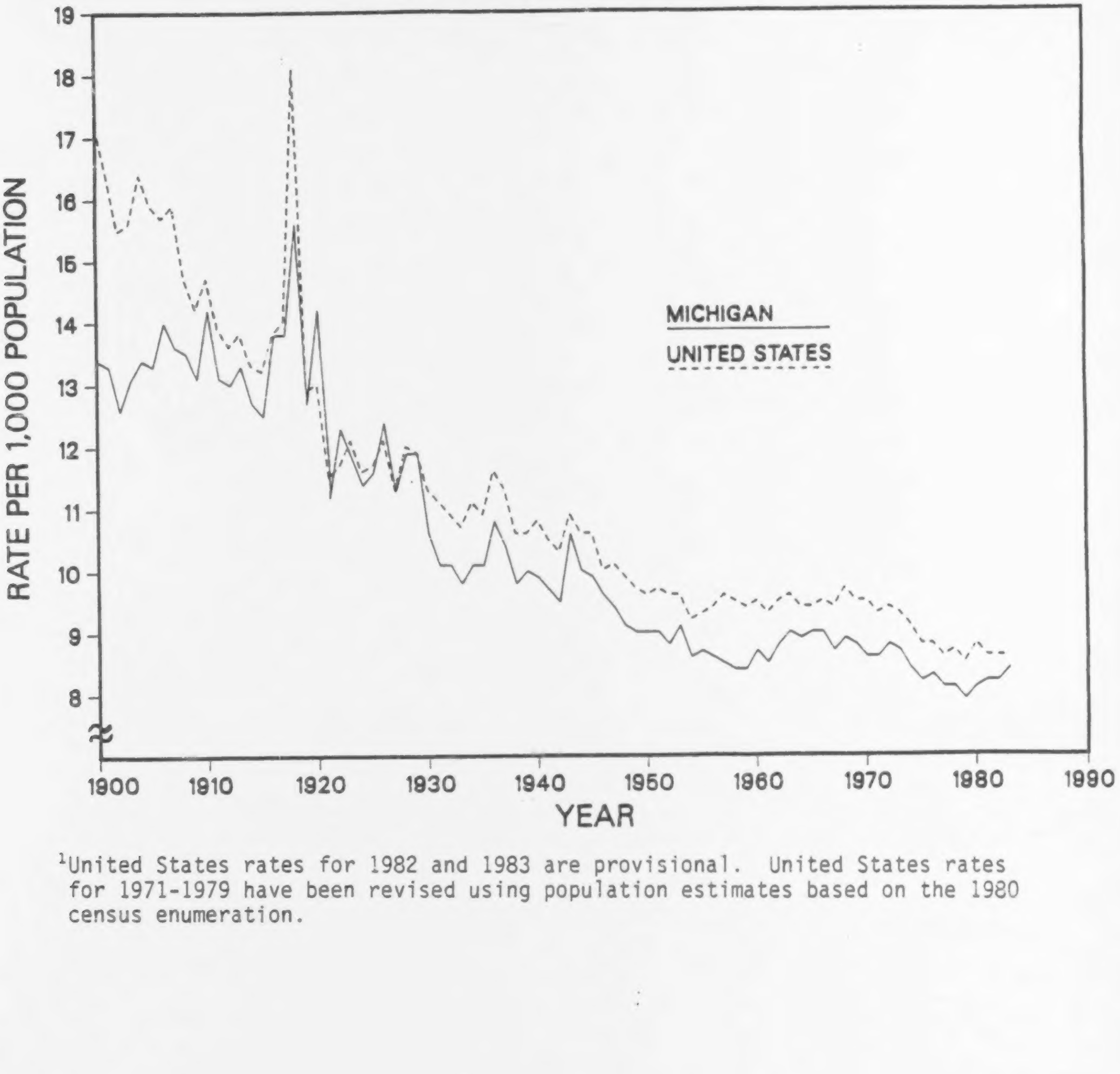
In 1983 there were 76,639 deaths recorded for Michigan residents, 1,103 more than in the previous year. The crude death rate per 1,000 population was 8.4 in 1983, above the rate of 8.2 observed in 1981 and 1982. The age-adjusted death rate rose in 1983 but by less than one percent from 1982. This latter rate, the age-adjusted rate serves as a better measure of mortality than a crude death rate as age-adjusted death rates control for differences or variations in the age composition of the population.

Between 1900 and 1983 the number of deaths occurring to Michigan residents increased from 32,453 to 76,639. The 31,472 deaths recorded in 1902 was the lowest number of resident deaths in this century, while the greatest number was recorded in 1972 when total resident deaths numbered 79,210. Although the total number of deaths increased between 1900 and 1983, the increase is due to an increasing population. The crude death rate decreased from 13.4 (per 1,000 population) in 1900 to 8.4 in 1983. The 1979 death rate of 7.9 was the lowest crude death rate ever recorded for Michigan. The highest death rate (15.6) was observed in 1918 (Figure 2.1).

A comparison of deaths and crude death rates for Michigan and the United States for the period 1970-1983 is presented in Table 2.1. As Michigan's population is somewhat "younger" than that of the nation, the Michigan rate has consistently been below the United States rate. Both Michigan and national rates were relatively stable between 1970 and 1973, declined in 1974 and 1975, and have remained fairly stable since 1975. Between 1970 and 1983 the number of Michigan resident deaths increased by less than one percent, while the crude death rate declined by 2.3 percent. The decline in the age-adjusted death rate was much steeper, dropping by 19.1 percent (Table 2.6). Over the period 1970-1983 the age-adjusted death rate for the nation declined by a similar amount, 23.1 percent. Over the period 1970 through 1983 the age-adjusted rate for Michigan has been persistently higher than national rates though to a small but increasing degree, based upon the revised data in Table 2.6. In 1983 the age-adjusted rate for Michigan was 5.6 percent above the provisional national rate.

The numbers of deaths by marital status and age for men and women are displayed in Table 2.2. The majority of men were married at the time of death while the majority of women were widows. Men were twice as likely as women to be married at the time of death (60.3 percent compared to 29.0 percent). Conversely, women were over three times as likely to be widows at the time of death as men were to be widowers (55.2 percent compared to 17.1 percent). Among males, 14.1 percent had never been married, while the corresponding

FIGURE 2.1
CRUDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS, 1900-1983[1]



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[1] United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

Table 2.1
Number of Deaths and Crude Death Rates, Michigan and United States Residents, 1970-1983

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,921,031	9.5	1970	76,321	8.6
1,927,542	9.3	1971	77,395	8.6
1,963,944	9.4	1972	79,210	8.8
1,973,003	9.3	1973	78,522	8.7
1,934,388	9.1	1974	76,143	8.4
1,892,879	8.8	1975	74,522	8.2
1,909,440	8.8	1976	75,801	8.3
1,899,597	8.6	1977	74,144	8.1
1,927,788	8.7	1978	74,773	8.1
1,913,841	8.5	1979	73,480	7.9
1,989,841	8.8	1980	74,991	8.1
1,977,981	8.6	1981	75,818	8.2
1,986,000Pr.	8.6Pr.	1982	75,536	8.2
2,010,000Pr.	8.6Pr.	1983	76,639	8.4

Table 2.2
Deaths by Age, Sex, and Marital Status, Michigan Residents, 1983

AGE IN YEARS	MALES						FEMALES					
	TOTAL	NEVER MARRIED	DIVORCED	WIDOWER	MARRIED[1]	UNKNOWN	TOTAL	NEVER MARRIED	DIVORCED	WIDOW	MARRIED[1]	UNKNOWN
Under 15	1,226	1,226	-	-	-	-	960	960	-	-	-	-
15-24	1,109	979	19	-	111	-	371	312	5	-	54	-
25-34	1,375	615	215	8	536	1	592	199	101	13	279	-
35-44	1,479	282	346	20	829	2	816	95	169	44	508	-
45-54	2,983	319	537	105	2,012	10	1,778	120	300	177	1,177	4
55-64	7,038	628	846	466	5,076	22	4,517	250	550	1,044	2,669	4
65-74	10,736	748	850	1,388	7,721	29	7,477	383	550	3,422	3,114	8
75-84	9,891	651	435	2,560	6,205	40	9,900	478	397	6,961	2,047	17
85+	4,950	291	143	2,412	2,087	17	9,431	533	232	8,107	548	11
Unknown	-	-	-	-	-	-	2	-	1	-	1	-
All Ages	40,787	5,739	3,391	6,959	24,577	121	35,844	3,330	2,305	19,768	10,397	44

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[1] Includes legally separated.

figure for females was 9.3 percent. Men were also more likely to be divorced (8.3 percent compared to 6.4 percent).

Table 2.3 presents data on the number of deaths by race for the period 1970-1983. The number of deaths of white persons declined by 1.7 percent over these years while deaths of black persons increased by 16.6 percent. Reported deaths of American Indians and persons of other races remained fairly constant. It should be noted that data on race are derived from the death certificates filed by funeral directors. Data from sources where race is self-enumerated, when matched with death data, indicate larger numbers of American Indians and persons of other races than reported as members of those groups on the death certificate.[1] In 1983 deaths of white persons numbered 66,103 and accounted for 86.3 percent of all deaths, while deaths of black persons constituted 13.3 percent of the state total.

Michigan resident deaths in 1983 are tabulated by age, race, and sex in Table 2.4. Of the 76,639 Michigan resident deaths that occurred in 1983, 40,787 (53.2 percent) occurred to males and 35,844 occurred to females (8 records had sex not stated). The median age at death for males was 70 years, compared to a significantly higher figure of 76 years for females. The median age at death was 74 years for whites, compared to 64 years for persons of other races.

In 1983, 24,252 or 31.6 percent of all deaths occurred to persons under the age of 65. The proportion dying under age 65 was greater for males than females and greater for other than white persons than for white persons. For deaths of white persons 35.3 percent of the males and 22.4 percent of the females died before age 65. For deaths of other than white persons 56.9 percent of the males and 44.3 percent of the females died before age 65.

Unadjusted, age-specific, and age-adjusted death rates by race and sex are presented in Table 2.5. The unadjusted rate for males of 915.2 was 19.9 percent above that for females while the age-adjusted rate for males was 74.0 percent higher. The population subgroup with the lowest unadjusted death rate was other than white females (637.9) and the highest unadjusted rate was experienced by white males (914.6). Age-adjusting the data results in a quite different relationship, however, with the age-adjusted rate being lowest for white females and highest for other than white males.

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[1] National Center for Health Statistics, Comparability of Marital Status, Race, Nationality and Country of Origin in the Death Certificate and Matching Census Record: United States, May - August, 1960 (Washington, D.C., 1969).

Table 2.3
Number of Deaths by Race[1], Michigan Residents, 1970-1983

YEAR	ALL RACES	WHITE	BLACK	AMERICAN INDIAN	OTHER[2]
1970	76,321	67,270	8,731	127	54
1971	77,395	67,847	9,259	128	45
1972	79,210	69,598	9,409	126	40
1973	78,522	68,502	9,641	121	54
1974	76,143	66,600	9,233	128	58
1975	74,522	65,191	9,024	118	60
1976	75,801	66,334	9,146	125	70
1977	74,144	64,816	9,038	140	53
1978	74,773	65,149	9,254	152	72
1979	73,480	63,955	9,188	129	75
1980	74,991	64,897	9,704	137	93
1981	75,818	65,559	9,950	127	78
1982	75,536	65,259	9,941	148	101
1983	76,639	66,103	10,178	163	121

[1] Deaths with race not stated included in total column only. Persons of Spanish or of Mexican-American descent are included with white.

[2] Includes Chinese, Japanese, Filipino, Hawaiian, other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977 and with "Other" since 1978.

Table 2.4
Deaths by Age, Race, and Sex[1], Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	1573	865	700	1048	579	466	521	285	231	4	1	3
1-4	271	145	126	191	108	83	80	37	43	-	-	-
5-9	149	89	60	112	66	46	37	23	14	-	-	-
10-14	201	127	74	144	92	52	56	34	22	1	1	-
15-19	620	450	170	485	346	139	132	102	30	3	2	1
20-24	860	659	201	636	494	142	221	162	59	3	3	-
25-29	924	664	260	642	470	172	282	194	88	-	-	-
30-34	1043	711	332	666	457	209	373	251	122	4	3	1
35-39	1002	650	352	676	413	263	321	233	88	5	4	1
40-44	1293	829	464	953	613	340	337	214	123	3	2	1
45-49	1766	1098	668	1385	862	523	380	235	145	1	1	-
50-54	2995	1885	1110	2357	1486	871	635	398	237	3	1	2
55-59	4807	3012	1795	3873	2436	1437	928	572	356	6	4	2
60-64	6748	4026	2722	5661	3403	2258	1081	620	461	6	3	3
65-69	8603	5161	3442	7485	4542	2943	1113	616	497	5	3	2
70-74	9610	5575	4035	8427	4928	3499	1175	643	532	8	4	4
75-79	10163	5383	4780	9086	4833	4253	1069	545	524	8	5	3
80-84	9628	4508	5120	8789	4104	4685	836	404	432	3	-	3
85-89	8056	3038	5018	7570	2828	4742	480	206	274	6	4	2
90+	6325	1912	4413	5915	1785	4130	405	126	279	5	1	4
Not Stated	2	-	2	2	-	2	-	-	-	-	-	-
All Ages	76639	40787	35844	66103	34845	31255	10462	5900	4557	74	42	32
Median Age At Last Birthday	72	70	76	74	71	77	64	61	67	62	58	69

[1] The deaths of 3 white and 5 other than white persons with sex not stated are included only in the total columns.

Table 2.5
Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	837.1	915.2	763.0	848.6	914.6	785.5	770.9	918.9	637.9
Under 1 Year	1148.0	1244.4	1047.9	937.9	1014.9	857.4	2096.7	2298.0	1893.2
1-14 Years	33.5	38.0	28.7	30.1	34.8	25.1	47.0	51.0	42.9
15-24 Years	81.2	120.8	41.0	72.7	107.5	36.9	128.9	199.8	62.7
25-34 Years	121.3	171.8	72.1	95.5	135.2	55.6	264.7	394.9	155.8
35-44 Years	226.8	297.7	158.5	186.3	237.1	136.5	490.3	718.4	293.2
45-54 Years	540.0	697.0	391.9	486.8	622.6	356.0	905.0	1252.1	620.1
55-64 Years	1310.0	1697.8	966.2	1220.5	1587.5	893.9	2010.3	2574.3	1523.5
65-74 Years	3181.6	4309.4	2312.6	3117.1	4263.8	2234.0	3716.5	4685.8	2966.0
75-84 Years	7036.4	9530.5	5578.0	7013.5	9596.1	5526.3	7259.8	8955.4	6112.3
85 Years and Over	16219.2	18631.4	15187.6	16412.1	18809.1	15391.8	13752.9	16460.1	12517.0
Age-Adjusted Rate[2]	580.3	761.9	437.8	548.5	722.6	413.4	788.9	1028.4	595.5

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

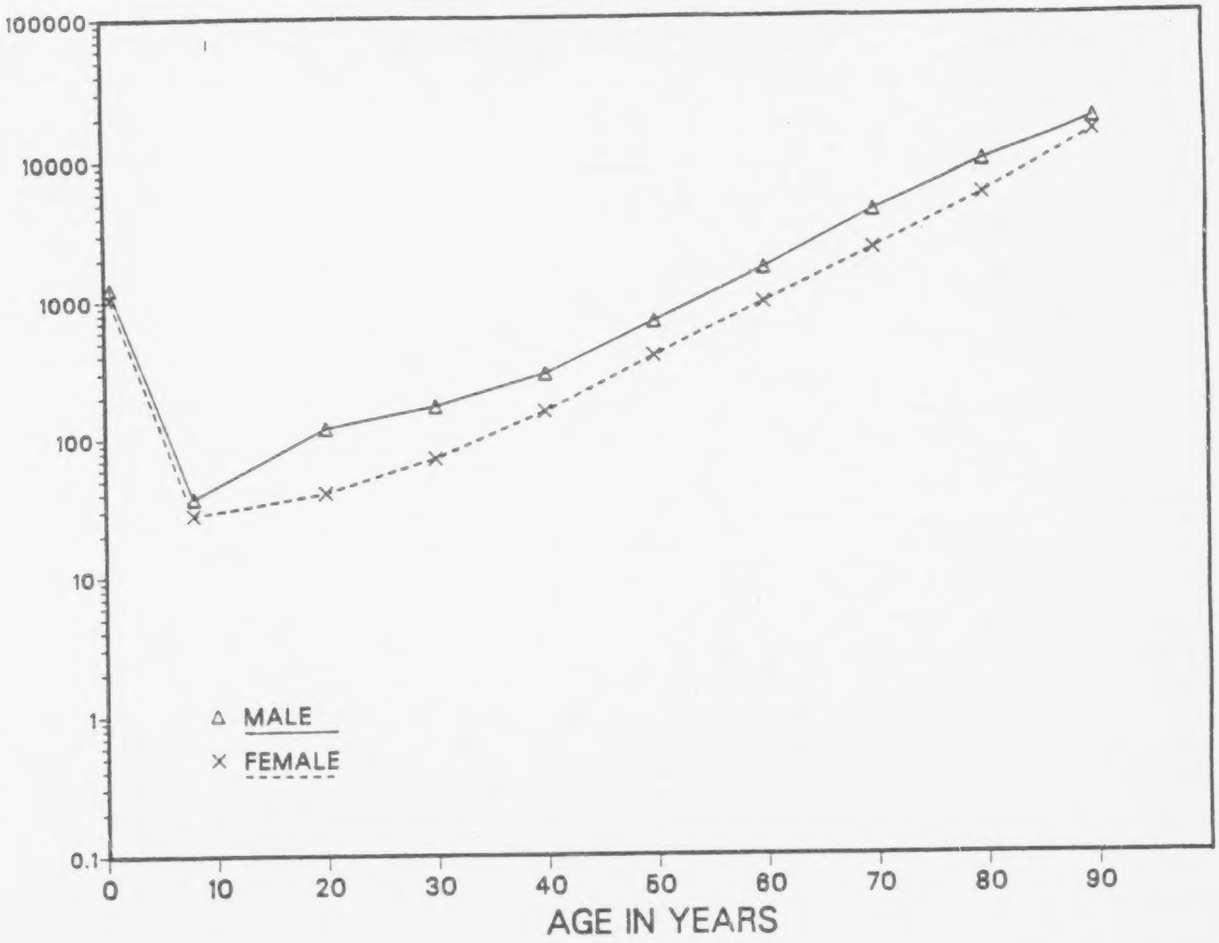
The age-specific death rates for all males and all females displayed in Figure 2.2 indicate a similar pattern. The rates for both sexes declined from birth to a low for ages 1-14 years. The rate for 15-24 year olds was much higher than for 1-14 year olds in both sexes (3.2 and 1.4 times as high, respectively, for males and females). The rates for both sexes rose through the terminal age group (85 years and over). The rates for males were consistently above those for females with the greatest relative differential occurring in the age group 15-24 years, where the rate for males was 2.9 times that for females.

A comparison by race of 1983 age-specific death rates for males is graphically presented in Figure 2.3. Rates for males of both races increased dramatically from the age group 1-14 years to the age group 15-24 years. Between ages 15-24 and 25-34 the rate for white males increased by 25.8 percent, while the corresponding increase for other than white males was 97.6 percent. Rates for other than white males were above those for white males at all ages prior to 75 years. The largest relative differential was for persons from 25 through 34 years of age, where the rate for other than white males was 3 times that of white males. Beyond age 74 the rates for white males were higher. The overall death rate of 918.9 per 100,000 for other than white males was equivalent to the rate for white males (914.6). This is a reflection of the younger age distribution of the other than white male population. The age-adjusted death rate for other than white males, which is a better indicater of relative mortality, was 42.3 percent higher than that for white males.

Rates for other than white females were higher than those for white females at all ages prior to 85 years (Figure 2.4). For infants under the age of one year and for women from 25 through 44 years, the rate for other than white females was two or more times the rate for white females. The death rate for all ages was 785.5 for white females and 637.9 for other than white females, reflecting the greater concentration of the white female population in the older age intervals with relatively high death rates. After adjusting for differences in the age distributions of the populations, the rate for other than white females was 44.0 percent greater than that for their white counterparts.

Age-adjusted death rates for other than white persons were considerably higher than comparable rates for white persons throughout the period 1970-1983 (Table 2.6). Age-adjusted rates for other than white males ranged between 28 percent (in 1978) and 42 percent (in 1983) higher than comparable rates for white males in Michigan. For females this differential is even greater with the rate for other than white women exceeding that for white women by 31 to 46 percent. In 1983 the differential for females was 44.0

FIGURE 2.2
AGE-SPECIFIC DEATH RATES[1] BY SEX,
MICHIGAN RESIDENTS, 1983



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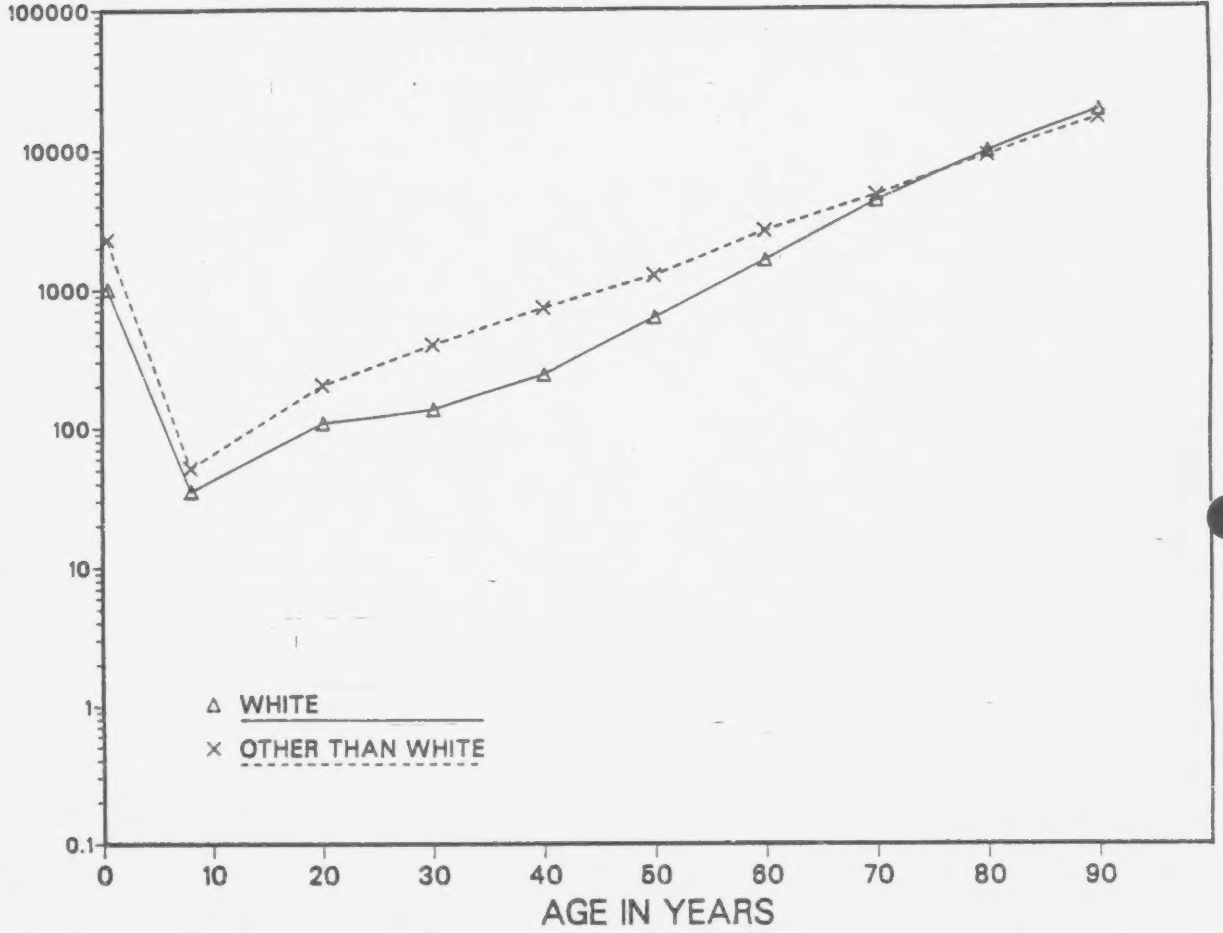
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.3
AGE-SPECIFIC DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1983



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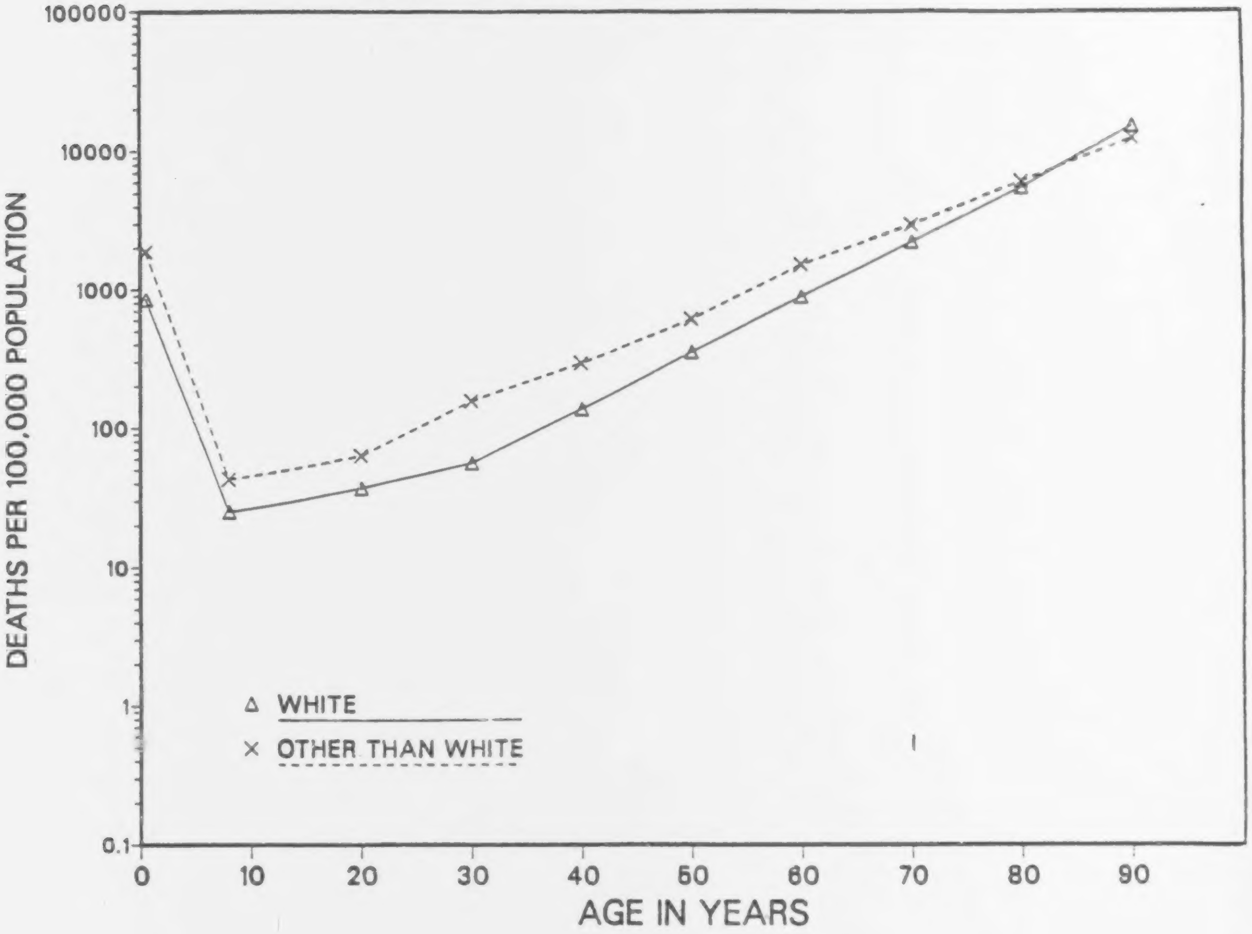
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.4
AGE-SPECIFIC DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1983



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

Table 2.6
Age-Adjusted Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	717.5	925.9	537.3	685.5	889.4	510.8	961.5	1201.7	744.8
	1971	707.9	922.9	524.0	672.5	881.2	495.7	969.6	1226.9	739.3
	1972	711.1	928.2	526.4	677.2	888.0	499.4	954.7	1220.4	719.6
	1973	694.3	906.3	513.7	658.4	862.6	486.0	949.5	1223.6	709.2
	1974	660.7	865.1	488.0	628.4	824.6	464.2	885.2	1153.2	651.4
	1975	640.2	840.3	472.4	610.1	800.5	452.0	846.1	1122.0	607.8
	1976	636.1	838.5	469.1	607.2	801.4	448.5	835.0	1100.7	608.1
	1977	614.4	814.8	449.4	587.3	781.6	428.8	802.2	1049.4	592.9
	1978	606.3	797.8	449.8	578.7	765.7	426.8	798.9	1025.7	608.9
	1979	585.4	775.6	431.4	557.9	742.5	409.7	773.0	1007.6	577.6
	1980	588.0	773.9	438.7	557.1	735.5	414.9	797.3	1045.8	594.3
	1981	584.5	769.0	437.9	554.0	731.7	413.8	789.7	1028.3	595.8
	1982	576.1	760.2	431.0	545.5	722.9	407.3	777.9	1011.6	588.2
	1983	580.3	761.9	437.8	548.5	722.6	413.4	788.9	1028.4	595.5
U.S.	1970	714.3	931.6	532.5	679.6	893.4	501.7	983.4	1231.4	770.8
	1971	697.6	913.3	519.1	663.7	876.0	489.1	959.5	1206.7	749.8
	1972	698.0	918.0	516.6	664.0	879.3	487.6	958.6	1223.1	737.1
	1973	687.3	905.9	508.1	654.0	868.5	479.3	942.2	1199.5	728.1
	1974	659.5	870.9	487.0	629.0	836.1	461.0	889.6	1142.4	680.5
	1975	630.4	837.2	462.5	602.2	804.3	439.0	840.6	1090.1	634.5
	1976	618.5	820.9	455.0	591.3	789.3	432.5	818.5	1063.4	618.3
	1977	602.1	801.3	441.8	575.7	770.6	419.6	796.7	1036.1	601.8
	1978	595.0	791.4	437.4	569.5	761.1	416.4	780.0	1021.0	585.8
	1979	577.0	768.6	423.1	551.9	738.4	402.5	757.1	994.8	566.9
	1980	585.8	777.2	432.6	559.4	745.3	411.1	774.2	1015.1	582.6
	1981	568.2	753.3	420.4	544.6	724.4	401.4	732.6	964.3	549.4
	1982	553.8	733.1	411.2	531.8	706.0	393.3	704.6	928.4	529.3
	1983	549.6[3]	---	---	---	---	---	---	---	---

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[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

percent.

Declines have occurred since 1970 both in Michigan and the United States in age-adjusted death rates in each race-sex subgroup. Michigan's age-adjusted rate for the population as a whole declined by 19.1 percent between 1970 and 1983 while the estimated decline between 1970 and 1983 for the United States was 23.1 percent (See Technical Notes). Relative declines in both Michigan and the United States were slightly greater for the other than white population. Revised rates based upon revisions to the 1980 census of the population indicate the rates for Michigan to be above national statistics through 1982 for all race/sex groupings. The greatest differential is in evidence with the other than white rates. These rates were above U.S. figures by 9.0 percent and 11.1 percent for males and females, respectively.

LEADING CAUSES OF DEATH

Deaths assigned to the 10 leading causes accounted for 85.5 percent of all deaths in 1983. Causes of death since 1979 are classified according to the Ninth Revision International Classification of Diseases (ICD-9) published by the World Health Organization. The cause-of-death ranking procedure used in Michigan is identical to that used by the National Center for Health Statistics (NCHS). It is based on a "List of 72 Selected Causes of Death," which NCHS constructed by combining titles in the "List of 282 Selected Causes of Death." This latter list, which is also used in this publication, was constructed by aggregating the detailed titles of ICD-9.

The numbers of deaths and the death rates for the 10 leading causes for 1983 are shown in Table 2.7, and the percentage of total deaths resulting from each of these causes is illustrated in Figure 2.5. The ranking of the 10 leading causes for 1983 was the same as that for 1981 and 1982. In 1980 chronic liver disease and cirrhosis was ranked 8th and atherosclersis was ranked 9th. In the last three years the order of these two causes has been reversed. Crude death rates in Michigan were higher in 1983 than in 1982 for six of the ten leading causes. The rates were lower in 1983 for deaths due to cerebrovascular disease, accidents and adverse effects, and suicide with atherosclerosis at the same rate in each year.

The order of the 10 leading causes for the United States in 1982 was similar to that for Michigan. The only difference was in the order of the causes ranked 8th, 9th and 10th. Certain differences between the United States figures and those of Michigan should be noted. The overall Michigan death rate was lower than the national rate. Nonetheless, Michigan's rates for heart disease, pneumonia and influenza, diabetes mellitus, chronic liver disease and cirrhosis, and atherosclerosis were higher than comparable national rates (Table 2.7).

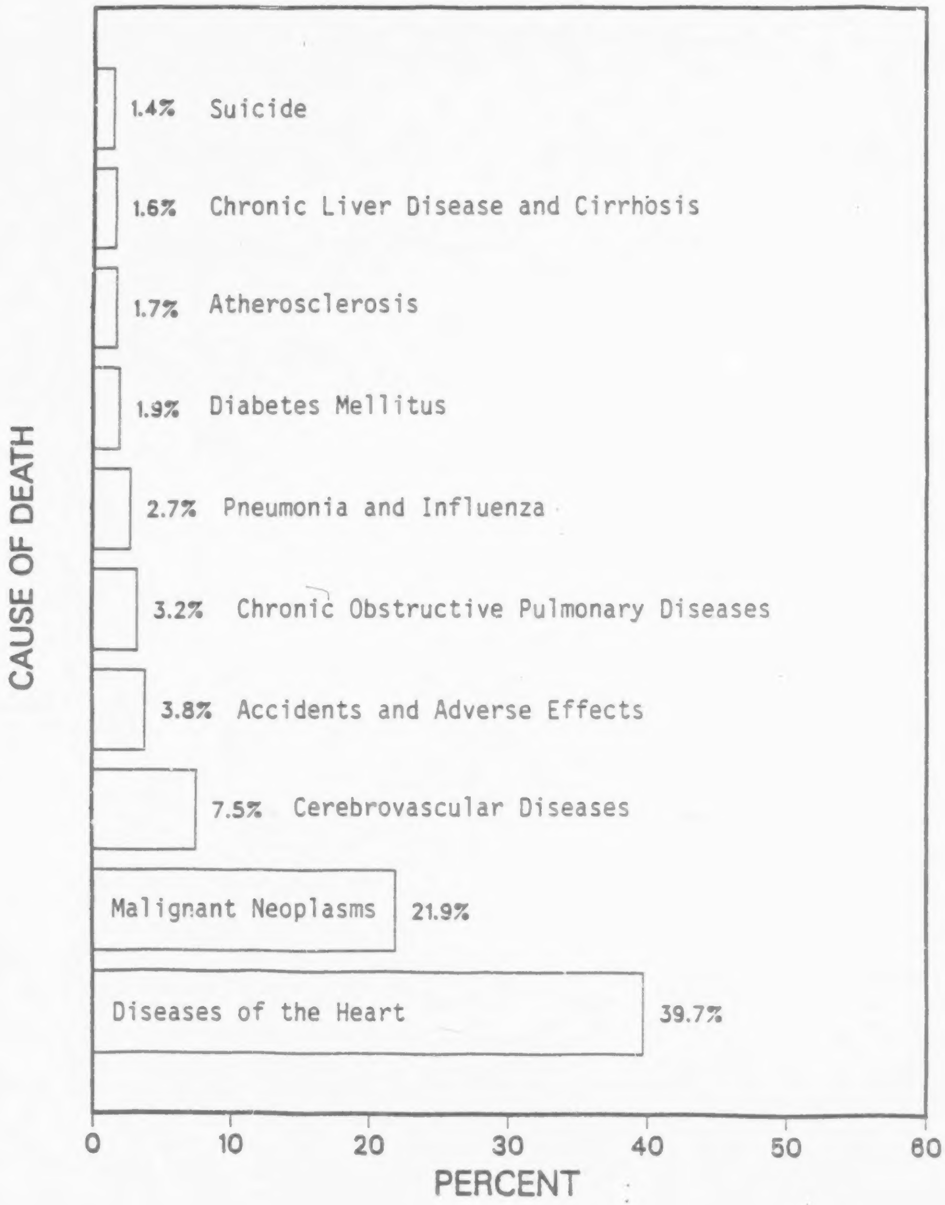
During the years 1968-1978 the Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA-8) was used to classify causes of death. The introduction of the Ninth Revision in 1979 resulted in a change in the ranking of the 10 leading causes between 1978 and 1979. The ranking of the four leading causes of death, heart disease, cancer, stroke, and accidents, has not changed. However, the fifth leading cause of death since 1979, chronic obstructive pulmonary diseases and allied conditions, is a new category, comparable to the Eighth Revision categories of bronchitis, emphysema, asthma, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema. This latter category was used increasingly by physicians during

Table 2.7
Leading Causes of Death and Cause-Specific Rates, Michigan and United States Residents, 1983

RANK	CAUSE OF DEATH	NUMBER OF DEATHS		RATE	
		MICHIGAN	U.S.[1]	MICHIGAN	U.S.[1]
1	Diseases of the Heart	30,412	766,420	332.2	327.6
2	Malignant Neoplasms	16,785	440,620	183.3	188.3
3	Cerebrovascular Diseases	5,721	156,380	62.5	66.8
4	Accidents and Adverse Effects	2,947	91,290	32.2	39.0
5	Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,466	66,340	26.9	28.4
6	Pneumonia and Influenza	2,102	53,590	23.0	22.9
7	Diabetes Mellitus	1,470	35,530	16.1	15.2
8	Atherosclerosis	1,269	25,940	13.9	11.1
9	Chronic Liver Disease and Cirrhosis	1,250	27,840	13.7	11.9
10	Suicide	1,084	29,080	11.8	12.4
	Sub Total	65,506	1,693,030	715.5	723.6
	All Other Causes	11,133	316,970	121.6	135.5
	Total	76,639	2,010,000	837.1	858.9

[1] United States data are estimates based on a 10 percent sample of deaths.

FIGURE 2.5
LEADING CAUSES OF DEATH, MICHIGAN RESIDENTS, 1983



the 1970's in preference to more specific categories. During the years in which the Eighth Revision was used, bronchitis, emphysema, and asthma were grouped together for purposes of ranking, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema was not used in ranking. The causes ranked 6th to 10th since 1979 are the same as the causes ranked 5th to 9th in 1978, although the order is slightly different in 1983. The 10th leading cause of death in 1978, homicide, is no longer ranked among the top 10. The number of homicides in 1983 was 957.

Table 4.8 shows the numbers of deaths and death rates for several major causes for each year during this century. There has been no change in the ranking of the four leading causes since 1950. From 1950 through 1978 the ranks of 5th and 6th were held by diabetes mellitus and pneumonia and influenza, with pneumonia and influenza ranking 5th in 19 of the 29 years. For the past eight years pneumonia and influenza has ranked above diabetes. Atherosclerosis, previously termed arteriosclerosis, has consistently been among the ten leading causes of death, ranking 7th in 1950 and 8th in 1983. The 9th leading cause of death in 1983, chronic liver disease and cirrhosis (formerly titled cirrhosis of the liver) was not among the ten leading causes of death in 1950. This cause ranked 10th in 1954 and has been among the ten most frequent causes consistently since 1960. It was the 7th leading cause each year from 1969 through 1978. Suicide, the 10th leading cause in 1983, first ranked in the top ten in 1964 when it was the 10th leading cause. In 1983, seven of the ten leading causes of death were chronic conditions, one was an acute disease category, and two were external non-disease groupings.

While the most frequent causes of death among all Michigan residents have changed little in recent years, this does not imply similarity in the leading causes of death among residents at different ages, of different sexes or different races. Table 2.8 presents the five most frequent causes of death by age, sex and race. Careful examination of this table will disclose that major differences in the leading causes of death are associated with these three characteristics. No single cause of death is among the most frequent causes in all categories. Heart disease, accidents and malignant neoplasms have the most widespread significance, being present respectively in 28, 24, and 27 of the 32 age-sex-race groupings. The variation in leading causes of death by age is most evident among deaths to infants under one year. This category has little similarity to any other age group. External causes of death, including accidents, suicide and homicide, are predominant killers among persons 1 through 34 years of age. Among persons 35 years and over, chronic conditions are responsible for the majority of deaths.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983

TOTAL POPULATION[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
All Ages	1. Diseases of the Heart	30,412	332.2
	2. Malignant Neoplasms	16,785	183.3
	3. Cerebrovascular Diseases	5,721	62.5
	4. Accidents	2,947	32.2
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,466	26.9
	All Causes	76,639	837.1
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	848	618.9
	2. Congenital Anomalies	286	208.7
	3. Accidents	41	29.9
	4. Diseases of the Heart	29	21.2
	5. Meningitis	15	10.9
	All Causes	1,573	1,148.0
1-4 Years	1. Accidents	92	18.8
	2. Congenital Anomalies	38	7.7
	3. Malignant Neoplasms	32	6.5
	4-5. Homicide - Diseases of the Heart	9	1.8
	All Causes	271	55.2
5-14 Years	1. Accidents	142	10.4
	2. Malignant Neoplasms	59	4.3
	3. Congenital Anomalies	22	1.6
	4. Homicide	20	1.5
	5. Diseases of the Heart	14	1.0
	All Causes	350	25.6
15-24 Years	1. Accidents	635	34.8
	2. Homicide	257	14.1
	3. Suicide	214	11.7
	4. Malignant Neoplasms	99	5.4
	5. Diseases of the Heart	50	2.7
	All Causes	1,480	81.2
25-34 Years	1. Accidents	486	30.0
	2. Homicide	310	19.1
	3. Suicide	243	15.0
	4. Malignant Neoplasms	221	13.6
	5. Diseases of the Heart	148	9.1
	All Causes	1,967	121.3

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

TOTAL POPULATION[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Diseases of the Heart	1,050	74.1
	2. Malignant Neoplasms	1,003	70.7
	3. Accidents	405	28.6
	4. Chronic Liver Disease and Cirrhosis	249	17.6
	5. Suicide	226	15.9
	All Causes	4,061	286.4
50-64 Years	1. Diseases of the Heart	5,237	385.7
	2. Malignant Neoplasms	4,952	364.8
	3. Cerebrovascular Diseases	674	49.6
	4. Chronic Liver Disease and Cirrhosis	504	37.1
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	421	31.0
	All Causes	14,550	1,071.7
65 and Over	1. Diseases of the Heart	23,874	2,533.4
	2. Malignant Neoplasms	10,414	1,105.1
	3. Cerebrovascular Diseases	4,798	509.1
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,970	209.0
	5. Pneumonia and Influenza	1,765	187.3
	All Causes	52,385	5,558.8

[1] Subtotals by sex and race do not add to the grand total as the race was not stated on records for 42 males and 32 females. In addition, the sex was not stated on 3 records for white and 5 records for other than white persons. Age groups do not add to respective totals because records with age not stated are included only in the total.

[2] Rates may not agree with those shown elsewhere in this section since records of unknown sex and race were randomly allocated prior to rate calculation for the other tables, and were not included in calculations for this table.

[3] Rate per 100,000 population.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

WHITE MALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
All Ages	1. Diseases of the Heart	14,117	370.1
	2. Malignant Neoplasms	7,866	206.2
	3. Cerebrovascular Diseases	1,998	52.4
	4. Accidents	1,766	46.3
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,427	37.4
	All Causes	34,845	913.6
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	292	509.2
	2. Congenital Anomalies	111	193.6
	3. Accidents	17	29.6
	4. Diseases of the Heart	11	19.2
	5. Pneumonia and Influenza	7	12.2
	All Causes	579	1,009.7
1-4 Years	1. Accidents	38	18.7
	2. Congenital Anomalies	15	7.4
	3. Malignant Neoplasms	14	6.9
	4. Diseases of the Heart	5	2.5
	5-6. Meningococcal Infection - Infections of Kidney	2	1.0
	All Causes	108	53.1
5-14 Years	1. Accidents	75	13.4
	2. Malignant Neoplasms	28	5.0
	3. Congenital Anomalies	12	2.1
	4. Homicide	6	1.1
	5. Diseases of the Heart	4	0.7
	All Causes	158	28.2
15-24 Years	1. Accidents	469	59.7
	2. Suicide	156	19.9
	3. Homicide	59	7.5
	4. Malignant Neoplasms	51	6.5
	5. Congenital Anomalies	18	2.3
	All Causes	840	107.0
25-34 Years	1. Accidents	345	50.2
	2. Suicide	174	25.3
	3. Malignant Neoplasms	96	14.0
	4. Diseases of the Heart	71	10.3
	5. Homicide	64	9.3
	All Causes	927	134.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

WHITE MALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Diseases of the Heart	632	104.2
	2. Malignant Neoplasms	372	61.3
	3. Accidents	261	43.0
	4. Suicide	137	22.6
	5. Chronic Liver Disease and Cirrhosis	121	19.9
	All Causes	1,888	311.2
50-64 Years	1. Diseases of the Heart	3,096	540.0
	2. Malignant Neoplasms	2,215	386.3
	3. Chronic Liver Disease and Cirrhosis	277	48.3
	4. Cerebrovascular Diseases	270	47.1
	5. Accidents	213	37.2
	All Causes	7,325	1,277.7
65 and Over	1. Diseases of the Heart	10,281	3,024.0
	2. Malignant Neoplasms	5,086	1,496.0
	3. Cerebrovascular Diseases	1,662	488.9
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,210	355.9
	5. Pneumonia and Influenza	756	222.4
	All Causes	23,020	6,771.0

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

OTHER THAN WHITE MALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
All Ages	1. Diseases of the Heart	1,734	269.7
	2. Malignant Neoplasms	1,254	195.0
	3. Homicide	527	82.0
	4. Cerebrovascular Diseases	325	50.5
	5. Accidents	271	42.2
	All Causes	5,900	917.7
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	167	1,337.2
	2. Congenital Anomalies	30	240.2
	3. Accidents	12	96.1
	4-5. Diseases of the Heart - Pneumonia and Influenza	5	40.0
	All Causes	285	2,282.0
1-4 Years	1. Accidents	12	25.0
	2-3. Chronic Obstructive Pulmonary Diseases and Allied Conditions - Certain Conditions Originating in Perinatal Period	3	6.3
	4. Malignant Neoplasms	2	4.2
	All Causes	37	77.2
5-14 Years	1. Accidents	21	15.2
	2. Homicide	10	7.2
	3. Malignant Neoplasms	6	4.3
	4. Congenital Anomalies	3	2.2
	5-6. Chronic Obstructive Pulmonary Diseases and Allied Conditions - Suicide	2	1.4
	All Causes	57	41.2
15-24 Years	1. Homicide	150	113.1
	2. Accidents	36	27.1
	3. Suicide	25	18.8
	4. Diseases of the Heart	8	6.0
	5. Malignant Neoplasms	7	5.3
	All Causes	264	199.0
25-34 Years	1. Homicide	168	149.1
	2. Accidents	55	48.8
	3-4. Diseases of the Heart - Chronic Liver Disease and Cirrhosis	27	24.0
	5. Suicide	24	21.3
	All Causes	445	394.9

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

OTHER THAN WHITE MALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Diseases of the Heart	151	175.3
	2. Homicide	116	134.7
	3. Malignant Neoplasms	69	80.1
	4. Chronic Liver Disease and Cirrhosis	67	77.8
	5. Accidents	53	61.5
	All Causes	682	791.8
50-64 Years	1. Diseases of the Heart	529	722.0
	2. Malignant Neoplasms	486	663.3
	3. Cerebrovascular Diseases	83	113.3
	4. Chronic Liver Disease and Cirrhosis	81	110.6
	5. Homicide	63	86.0
	All Causes	1,590	2,170.1
65 and Over	1. Diseases of the Heart	1,012	2,561.8
	2. Malignant Neoplasms	665	1,683.4
	3. Cerebrovascular Diseases	185	468.3
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	100	253.1
	5. Pneumonia and Influenza	97	245.5
	All Causes	2,540	6,429.7

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

WHITE FEMALES[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
All Ages	1. Diseases of the Heart	12,870	323.1
	2. Malignant Neoplasms	6,755	169.6
	3. Cerebrovascular Diseases	2,974	74.7
	4. Pneumonia and Influenza	927	23.3
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	815	20.5
	All Causes	31,255	784.7
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	236	430.5
	2. Congenital Anomalies	112	204.3
	3-4. Accidents - Diseases of the Heart	9	16.4
	5. Meningitis	4	7.3
	All Causes	466	850.1
1-4 Years	1. Accidents	31	16.1
	2. Congenital Anomalies	19	9.9
	3. Malignant Neoplasms	12	6.2
	4. Homicide	4	2.1
	5-7. Meningitis - Cerebrovascular Diseases - Pneumonia and Influenza	2	1.0
	All Causes	83	43.2
5-14 Years	1. Accidents	35	6.6
	2. Malignant Neoplasms	19	3.6
	3. Diseases of the Heart	7	1.3
	4. Congenital Anomalies	6	1.1
	5-6. Cerebrovascular Diseases - Homicide	3	0.6
	All Causes	98	18.5
15-24 Years	1. Accidents	119	15.6
	2. Malignant Neoplasms	37	4.8
	3. Suicide	28	3.7
	4. Homicide	18	2.4
	5. Diseases of the Heart	15	2.0
	All Causes	281	36.8
25-34 Years	1. Malignant Neoplasms	85	12.4
	2. Accidents	66	9.6
	3. Suicide	39	5.7
	4. Homicide	32	4.7
	5. Diseases of the Heart	27	3.9
	All Causes	381	55.5

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

WHITE FEMALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
35-49 Years	1. Malignant Neoplasms	467	75.0
	2. Diseases of the Heart	190	30.5
	3. Accidents	70	11.2
	4. Suicide	66	10.6
	5. Cerebrovascular Diseases	59	9.5
	All Causes	1,126	180.8
50-64 Years	1. Malignant Neoplasms	1,933	309.0
	2. Diseases of the Heart	1,255	200.6
	3. Cerebrovascular Diseases	233	37.2
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	164	26.2
	5. Diabetes Mellitus	132	21.1
	All Causes	4,566	729.8
65 and Over	1. Diseases of the Heart	11,365	2,236.7
	2. Malignant Neoplasms	4,201	826.8
	3. Cerebrovascular Diseases	2,661	523.7
	4. Pneumonia and Influenza	834	164.1
	5. Atherosclerosis	744	146.4
	All Causes	24,252	4,773.0

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

OTHER THAN WHITE FEMALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
All Ages	1. Diseases of the Heart	1,663	232.4
	2. Malignant Neoplasms	902	126.1
	3. Cerebrovascular Diseases	418	58.4
	4. Certain Conditions Originating in the Perinatal Period	145	20.3
	5. Diabetes Mellitus	127	17.7
	All Causes	4,557	636.9
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	144	1,165.0
	2. Congenital Anomales	31	250.8
	3-4. Diseases of the Heart - Meningitis	4	32.4
	5. Accidents	3	24.3
	All Causes	231	1,868.9
1-4 Years	1. Accidents	11	23.3
	2-4. Congenital Anomalies - Malignant Neoplasms - Homicide	4	8.5
	5-6. Diseases of the Heart - Nutritional Deficiencies	2	4.2
	All Causes	43	91.2
5-14 Years	1. Accidents	10	7.3
	2. Malignant Neoplasms	6	4.4
	3-4. Diseases of the Heart - Suicide	2	1.5
	All Causes	36	26.3
15-24 Years	1. Homicide	30	21.1
	2-3. Accidents - Diseases of the Heart	8	5.6
	4-5. Malignant Neoplasms - Suicide	4	2.8
	All Causes	89	62.7
25-34 Years	1. Homicide	46	34.1
	2. Diseases of the Heart	23	17.1
	3. Malignant Neoplasms	21	15.6
	4. Accidents	17	12.6
	5. Chronic Liver Disease and Cirrhosis	12	8.9
	All Causes	210	155.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1983 (Continued)

OTHER THAN WHITE FEMALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Malignant Neoplasms	94	92.0
	2. Diseases of the Heart	74	72.4
	3. Cerebrovascular Diseases	33	32.3
	4-5. Chronic Liver Disease and Cirrhosis - Homicide	22	21.5
	All Causes	356	348.4
50-64 Years	1. Diseases of the Heart	350	409.7
	2. Malignant Neoplasms	315	368.8
	3. Cerebrovascular Diseases	87	101.8
	4. Chronic Liver Disease and Cirrhosis	41	48.0
	5. Diabetes Mellitus	37	43.3
	All Causes	1,054	1,233.9
65 and Over	1. Diseases of the Heart	1,200	2,189.7
	2. Malignant Neoplasms	458	835.7
	3. Cerebrovascular Diseases	286	521.9
	4-5. Diabetes Mellitus - Pneumonia and Influenza	77	140.5
	All Causes	2,538	4,631.2

DISEASES OF THE HEART

The leading cause of death, heart disease, caused the deaths of 30,412 Michigan residents in 1983. This is more than the number of deaths from the next five largest categories combined. There were 313 more deaths from heart disease in 1983 than in 1982. The crude rate of 332.2 deaths per 100,000 population from this cause in 1983 is just above the rate of 326.2 in 1982.

The median age of persons who died from heart disease was 76 years, compared to a median of 72 years for deaths from all causes. Of the 30,412 deaths due to diseases of the heart, 52.2 percent were to males. The median age at death for males was 72 years compared to 80 years for females. The median age of 72 years for white males exceeded that for other than white males by 4 years. The median age at death for white females was 80 years, 7 years above that for other than white females (Table 2.9).

Table 2.10 presents death rates for diseases of the heart by age, race and sex. Note that the death rate associated with this cause rises markedly with advancing age. Heart disease was the underlying cause of death for 38 persons below 5 years of age or about 2.1 percent of all deaths in this age group. In contrast, 50.1 percent of all deaths in the age group 85 and over were attributed to this cause in 1983. The heart disease death rate was 8,127.1 among persons 85 years of age or older.

Examination of Table 2.10 reveals that the heart disease death rate for males was substantially higher than that for females (356.1 compared to 309.5 per 100,000 population). The relationship between rates for males and females is graphically displayed in Figure 2.6. The age-specific heart disease death rates for males and females were virtually the same for the age group 1-14. Rates for males were above those of females in all other age groups. The greatest relative differentials occurred from age 35 through 64 with rates for males ranging from 2.4 to 3.2 times the corresponding rates for females. The gap between rates for males and females became progressively smaller after age 44. Among persons 85 years of age or over the rate of 8,796.3 for males was 12 percent above that for females (7,840.9). The age-adjusted death rate for males was 1.9 times that for females.

A comparison of 1983 heart disease death rates for males by race is graphically presented in Figure 2.7. Rates for other than white males were higher than those for white males for all age intervals below 65 and lower than rates for white males in all age intervals at age 65 or over. The rate for white males across all ages was 370.6 compared to 270.0 for other than white males. This differential stems

Table 2.9
Deaths Due to Diseases of the Heart by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	29	16	13	20	11	9	9	5	4	-	-	-
1-4	9	6	3	6	5	1	3	1	2	-	-	-
5-9	6	2	4	5	1	4	1	1	-	-	-	-
10-14	8	3	5	6	3	3	2	-	2	-	-	-
15-19	18	9	9	12	5	7	5	3	2	1	1	-
20-24	32	18	14	20	12	8	11	5	6	1	1	-
25-29	47	29	18	31	22	9	16	7	9	-	-	-
30-34	101	69	32	67	49	18	34	20	14	-	-	-
35-39	169	122	47	117	85	32	52	37	15	-	-	-
40-44	341	257	84	261	207	54	78	49	29	2	1	1
45-49	540	406	134	444	340	104	95	65	30	1	1	-
50-54	985	735	250	796	607	189	187	127	60	2	1	1
55-59	1722	1225	497	1403	1028	375	316	194	122	3	3	-
60-64	2530	1671	859	2152	1461	691	376	208	168	2	2	-
65-69	3447	2178	1269	3021	1975	1046	423	201	222	3	2	1
70-74	4195	2482	1713	3676	2195	1481	515	285	230	4	2	2
75-79	4553	2331	2222	4109	2137	1972	439	190	249	5	4	1
80-84	4473	1974	2499	4081	1806	2275	391	168	223	1	-	1
85-89	3965	1417	2548	3727	1312	2415	235	104	131	3	1	2
90+	3241	920	2321	3032	856	2176	209	64	145	-	-	-
Not Stated	1	-	1	1	-	1	-	-	-	-	-	-
All Ages	30412	15870	14542	26987	14117	12870	3397	1734	1663	28	19	9
Median Age At Last Birthday	76	72	80	76	72	80	70	68	73	66	*	*

Table 2.10
Heart Disease Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	332.2	356.1	309.5	346.4	370.6	323.3	250.4	270.0	232.7
Under 1 Year	21.2	22.9	19.4	17.8	19.2	16.4	36.2	40.0	*
1-14 Years	1.2	1.2	1.3	1.1	1.2	1.1	1.6	*	*
15-24 Years	2.7	2.9	2.5	2.2	2.4	2.0	5.8	6.0	5.6
25-34 Years	9.1	12.2	6.1	7.1	10.3	3.9	20.2	24.0	17.1
35-44 Years	50.4	76.3	25.4	43.2	67.5	19.4	97.2	137.6	62.2
45-54 Years	173.0	266.6	84.6	161.5	251.4	75.0	251.4	379.8	146.1
55-64 Years	482.1	698.6	290.1	455.1	677.1	257.6	692.8	869.6	540.1
65-74 Years	1335.0	1870.5	922.3	1312.0	1877.7	876.3	1525.6	1811.1	1304.5
75-84 Years	3209.1	4148.1	2660.0	3214.0	4235.7	2625.7	3161.4	3378.3	3014.6
85 Years and Over	8127.1	8796.3	7840.9	8223.1	8834.3	7962.8	6899.8	8329.2	6247.2
Age-Adjusted Rate[2]	211.1	287.5	151.0	205.3	284.3	143.4	251.4	308.4	206.4

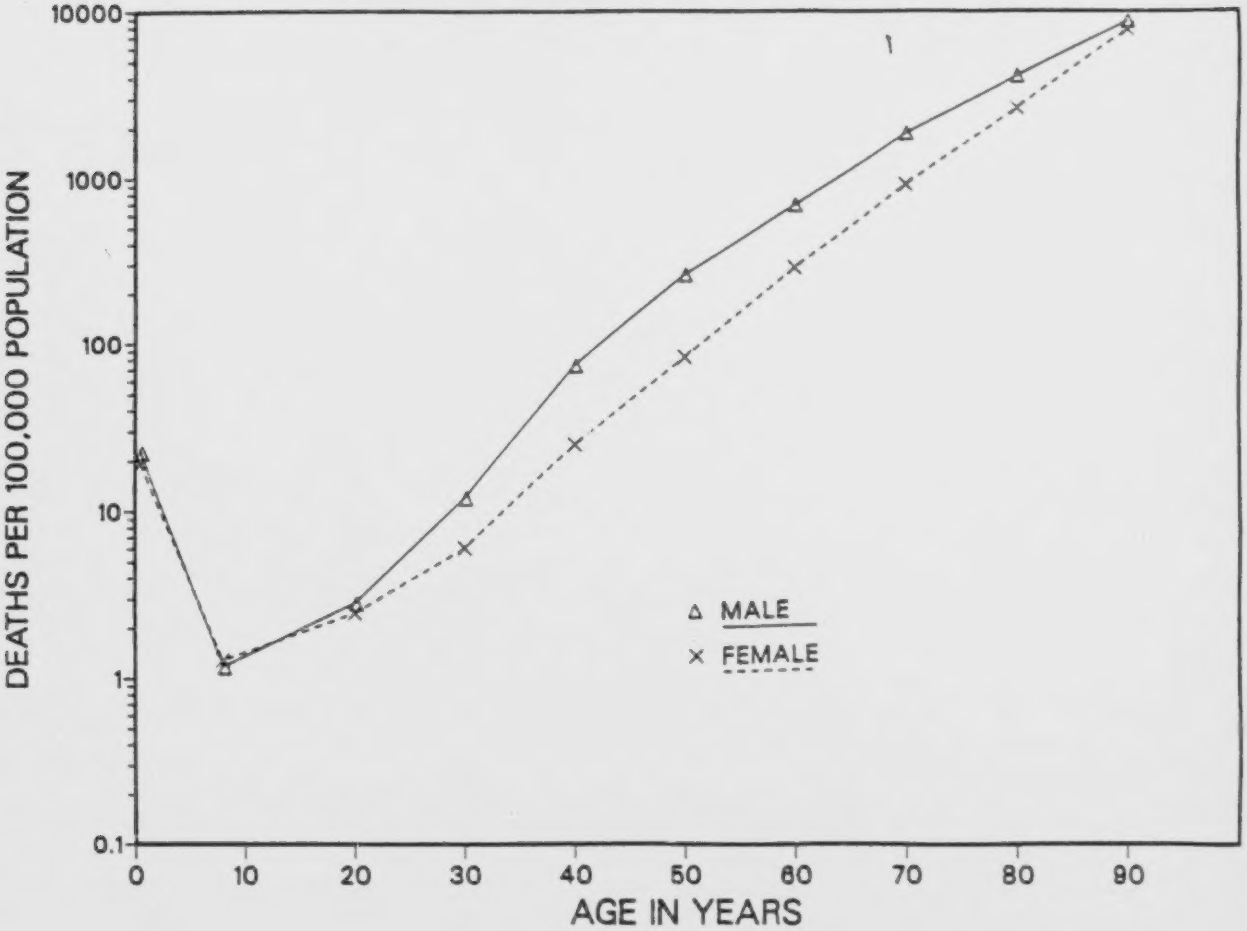
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.6
AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1983



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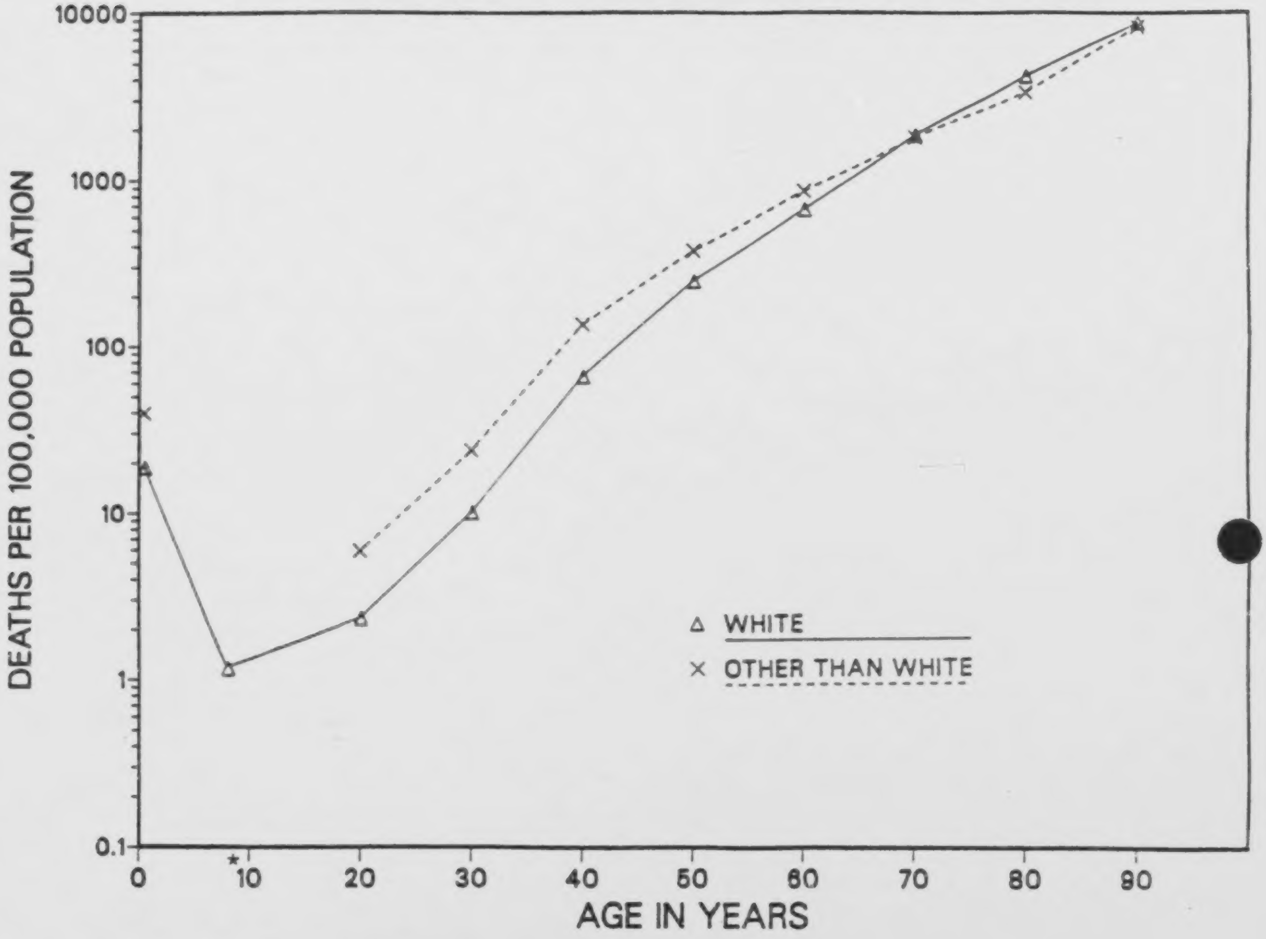
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.7

AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1983

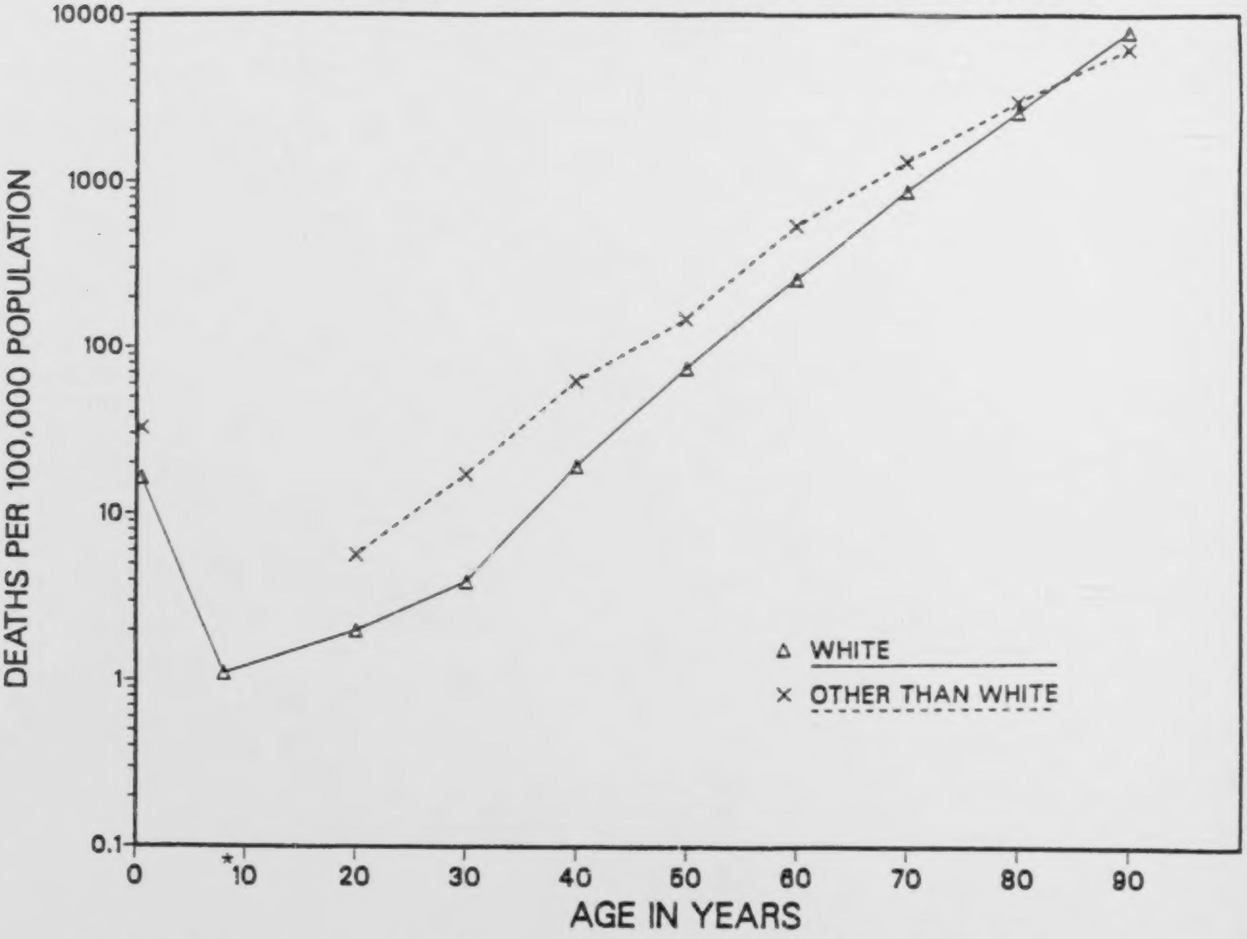


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.8

AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

from the fact that a greater proportion of the white male population was in the older age groups where heart disease death rates were particularly high. The age-adjusted heart disease death rate for white males was 284.3 in 1983, 7.8 percent below the rate of 308.4 for other than white males.

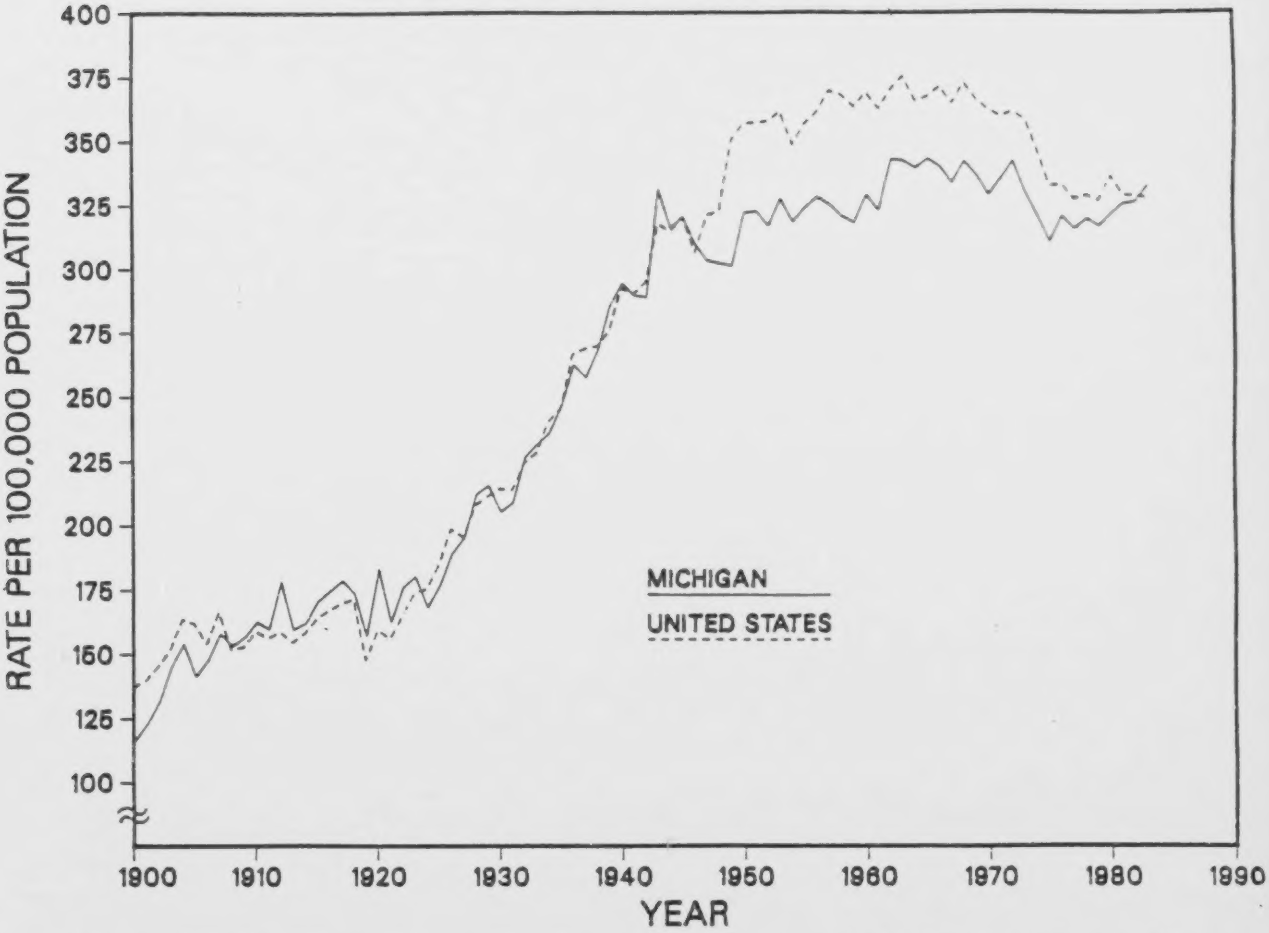
Heart disease death rates for white and other than white females are displayed in Figure 2.8. Rates for other than white females were greater than those for white females between ages 15 and 84. After age 44 the relative differentials steadily decreased with advancing age. Beyond age 84 the rate for white females exceeded that for other than white females with a 27.5 percent differential at ages of 85 and over. Although the rate for white females of all ages (323.3) was substantially above the comparable rate for other than white females (232.7), this relationship is reversed when the differing age distributions of the two populations are considered. The age-adjusted rate for other than white females was 206.4 while that for white females was 143.4.

In 1900 the crude heart disease death rate in Michigan was 117.1, the lowest rate of this century. Heart disease death rates rose through the time period 1900-1950 and have remained relatively stable over the last thirty-one years. The highest rate observed during the century was 343.1 in 1965. The rate of 332.2 for 1983 was 3 percent below the peak rate observed in 1965. The rate for Michigan was consistently close to the national rate until 1947. Since that time the crude rate for Michigan has been below that of the nation but by a progressively lesser degree in recent years. In 1983, the rate for the nation was an estimated 327.6. The rate for Michigan was above the national rate for the first time since 1944 but by only 1.4 percent.

Age-adjusted death rates for diseases of the heart since 1970 are presented in Table 2.11. These data indicate a downward trend in heart disease death rates for the population as a whole and for each race-sex subgroup individually. Between 1970 and 1972 the rate for Michigan remained constant. Since 1972 the rate has declined each year, with the exception of 1976. The age-adjusted death rate for the nation declined each year between 1970 and 1979. The 1980 provisional rate for the United States exceeded by 0.9 percent the 1979 rate. The age-adjusted rate for Michigan declined by 19 percent between 1970 and 1983 whereas the age-adjusted rate for the nation declined by 26 percent (see Technical Notes). The age-adjusted rate for Michigan has been above that for the nation consistently since 1970. In 1983 Michigan's rate was 12.0 percent above the national rate. Age-adjusted rates for other than white females have been well above those for white females in both Michigan and the United States. In Michigan age-adjusted rates for other than white males have tended to be slightly

FIGURE 2.9

HEART DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1983[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. Unites States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Heart Disease death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.11
Age-Adjusted Heart Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	260.4	352.2	181.2	257.0	352.5	175.1	280.6	336.6	230.2
	1971	259.7	358.7	175.5	255.9	359.0	168.8	281.8	339.7	229.4
	1972	260.5	355.2	180.3	256.7	353.9	174.7	284.1	356.1	220.6
	1973	247.7	339.2	170.8	243.8	337.8	165.0	273.0	340.4	213.9
	1974	235.6	321.7	163.7	232.6	321.8	158.2	253.8	311.5	203.8
	1975	226.2	312.2	154.5	224.7	313.6	150.8	231.3	290.6	180.2
	1976	228.0	316.6	155.4	225.7	316.9	151.2	241.8	306.6	186.8
	1977	221.5	308.4	150.7	218.2	308.1	145.1	242.6	302.1	192.1
	1978	219.0	302.4	151.2	214.9	301.0	145.2	247.8	307.9	197.8
	1979	215.4	298.5	148.5	211.2	296.2	143.0	243.2	310.7	187.7
	1980	214.9	295.5	150.6	210.0	292.2	144.4	249.5	317.5	195.2
	1981	213.8	298.3	146.7	208.5	295.5	139.6	250.3	314.3	198.3
	1982	210.3	291.2	147.0	204.9	288.2	139.8	247.7	309.1	198.9
	1983	211.1	287.5	151.0	205.3	284.3	143.4	251.4	308.4	206.4
U.S.	1970	253.6	348.5	175.2	249.1	347.6	167.8	288.9	350.8	236.6
	1971	249.3	344.1	171.7	245.1	343.5	164.8	280.3	343.2	227.8
	1972	247.9	343.1	170.3	243.5	341.8	163.4	281.1	348.7	225.8
	1973	242.4	337.3	165.6	237.9	336.0	158.7	276.9	343.6	222.5
	1974	230.3	321.3	157.1	226.4	320.3	150.8	259.7	325.1	206.8
	1975	217.8	305.7	147.4	214.5	305.1	141.9	241.8	305.9	190.1
	1976	213.6	300.2	144.4	210.4	299.6	139.2	237.0	301.6	185.1
	1977	206.9	291.3	139.9	203.3	290.2	134.4	233.0	296.3	182.4
	1978	203.8	286.2	138.5	200.2	284.7	133.3	229.4	294.6	178.1
	1979	199.5	278.9	136.8	195.6	276.8	131.3	227.4	291.8	177.3
	1980	202.0	280.4	140.3	197.6	277.5	134.6	234.2	299.6	183.5
	1981	195.0	271.2	135.1	191.1	268.8	129.8	222.6	286.1	173.5
	1982	190.5	264.4	132.5	186.8	262.1	127.4	215.8	278.7	167.9
	1983	188.5[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

below those for white males. This has not been the case for Michigan over the last six years nor for the nation historically.

The most prevalent type of heart disease death is acute myocardial infarction (11,682 deaths in 1983), commonly referred to as a "coronary" (Table 2.12). The second most frequent is old myocardial infarction and other forms of chronic ischemic heart disease. In 1983 there were 10,423 deaths attributed to this cause. Together, these causes accounted for 72.7 percent of all Michigan resident deaths from heart disease. Of the remaining 8,307 heart disease deaths, 77.5 percent were attributed to all other and ill-defined forms of heart disease (5,266 deaths) and heart failure (1,173 deaths).

The probability of eventually dying from heart disease, based on Michigan resident death data from 1981, 1982, and 1983 is 0.419 for males and 0.436 for females at birth. The chance associated with dying from heart disease increases steadily for both sexes with advancing age as certain competing causes of death become less likely. By age 85, the observed probability is 0.481 for males and 0.516 for females. At all ages the probability of death eventually being caused by heart disease is greater for females. These differentials by sex are smallest between ages 25 and 50. The higher probability for females reflects smaller chances of death due to some cause other than heart disease (Figure 2.10).

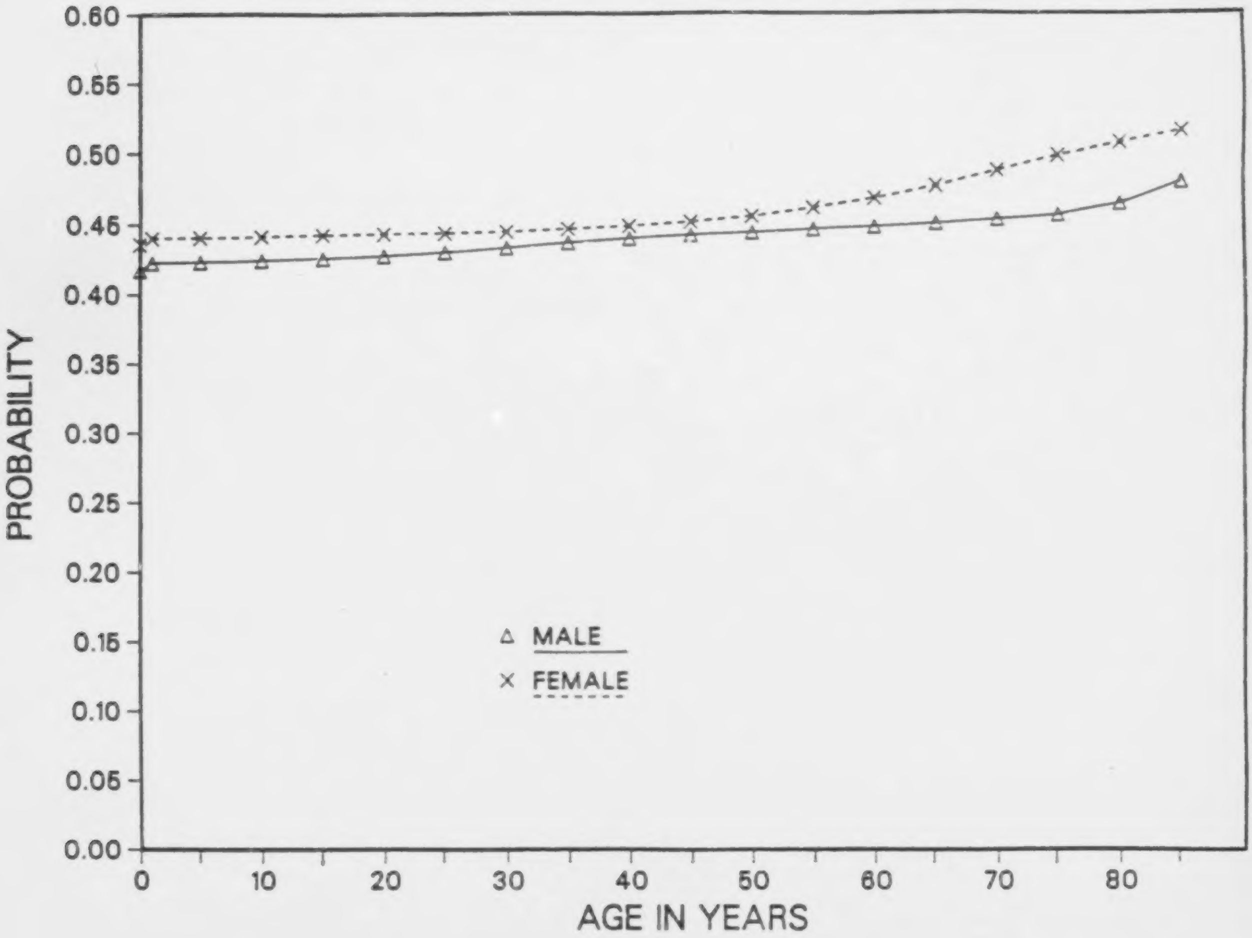
An apparent inconsistency can be noted by review of Figure 2.6 and Figure 2.10. The heart disease mortality rate for males is higher than that for females over nearly all ages, yet the chance of eventual death due to heart disease is slightly greater for females at all ages. This paradox is explained by a comparison of these two measures. The cause-specific mortality rate measures the proportion of a population that died from the particular cause over a certain period of time. The probability estimate takes into account the present age and cause-specific mortality rates and the life expectancy of the population. A greater proportion of all females now alive are expected to live into the older age intervals where they will be subject to the high heart disease mortality rates characteristic of those age groups. The effect of the longer female life span outweighs the effect of the higher mortality rate for males from heart disease.

Table 2.12
Deaths Due to Diseases of the Heart by Specific Cause, Michigan Residents, 1983

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
136	Acute Myocardial Infarction	11,682	38.4
139	Old Myocardial Infarction and Other Forms of Chronic Ischemic Heart Disease	10,423	34.3
148	All Other and Ill-Defined Forms of Heart Disease	5,266	17.3
146	Heart Failure	1,173	3.9
133	Hypertensive Heart Disease	578	1.9
140	Diseases of Pulmonary Circulation	399	1.3
144	Aortic Valve Disorders	184	0.6
128	Diseases of Mitral Valve	129	0.4
135	Hypertensive Heart and Renal Disease	96	0.3
131	All Other Chronic Rheumatic Heart Disease	92	0.3
147	Myocarditis, Unspecified and Myocardial Degeneration	71	0.2
137	Other Acute and Subacute Forms of Ischemic Heart Disease	57	0.2
143	Mitral Valve Disorders	56	0.2
145	All Other Diseases of Endocardium	51	0.2
130	Diseases of Mitral and Aortic Valves	45	0.1
141	Acute and Subacute Endocarditis	38	0.1
138	Angina Pectoris	30	0.1
142	Acute Pericarditis, Acute Myocarditis, and Other Diseases of Pericardium	28	0.1
129	Diseases of Aortic Valve	12	0.0
127	Acute Rheumatic Fever	2	0.0
	Total	30,412	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.10
PROBABILITY OF EVENTUALLY DYING FROM HEART DISEASE BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CANCER

Of 76,639 Michigan resident deaths in 1983, 16,785 were attributed to cancer. Although not the leading cause of death in Michigan or the United States, cancer affects all the human body's major systems and persons of all ages. The frequency of death due to cancer was 55.2 percent of the number of deaths due to heart disease across all ages, but the number of cancer deaths below age 60 was greater than the number of deaths due to heart disease below age 60. The median age at death for cancer was 68 years, well below the median age of 75 years for heart disease deaths (Table 2.13).

Of the 16,785 cancer deaths in 1983 occurring to Michigan residents, 54.3 percent were to males. The median age at death was 69 years for white males and for females. The median ages at death for other than white persons who died of cancer were 66 years for males and 65 years for females.

Cancer death rates by age, race and sex are presented in Table 2.14. The cancer death rate across all ages in 1983 was higher for males (204.7) than for females (163.1). The cancer death rates displayed in Figure 2.11 show a strong increase in mortality with advancing age. Mortality rates for males were higher than those for females below age 35. In the age group 35-44 years the rate for females was 38.5 percent higher than those for males. After age 44 the rates for males were greater than those for females. Between ages 45 and 84 the relative differential increased steadily, from 9.9 percent in the 45-54 year age group to 106.8 percent in the age group 85 years and over. The age-adjusted cancer death rate for males was 52 percent above that for females.

Cancer death rates for white and other than white males recorded in Table 2.14 are graphically displayed in Figure 2.12. The rates for these groups were similar below age 35. Rates for other than white males exceeded those for white males at all ages beyond 34 years but by a progressively smaller relative amount. The largest relative differential occurred in the age group 45-54 years, where the rate for other than white males exceeded by 91.9 percent the rate for white males. Although the crude death rate for other than white males was below the comparable rate for white males, the age-adjusted rate for other than white males was 35 percent higher than the age-adjusted rate for white males.

Age-specific cancer death rates for white females were below those for other than white females before age 35 and above those for ages 35 and over (Figure 2.13). The disparity ranged around 20 percent from ages 35 through 64, then declined until, at ages 85 and over, the rate for white

Table 2.13
Deaths Due to Cancer by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	5	4	1	5	4	1	-	-	-	-	-	-
1-4	32	16	16	26	14	12	6	2	4	-	-	-
5-9	24	13	11	20	11	9	4	2	2	-	-	-
10-14	35	21	14	27	17	10	8	4	4	-	-	-
15-19	39	25	14	36	23	13	3	2	1	-	-	-
20-24	60	33	27	52	28	24	8	5	3	-	-	-
25-29	89	54	35	74	43	31	15	11	4	-	-	-
30-34	132	61	71	107	53	54	25	8	17	-	-	-
35-39	189	69	120	167	62	105	21	7	14	1	-	1
40-44	291	128	163	240	108	132	51	20	31	-	-	-
45-49	523	244	279	432	202	230	91	42	49	-	-	-
50-54	976	519	457	792	405	387	183	114	69	1	-	1
55-59	1694	934	760	1418	767	651	275	166	109	1	1	-
60-64	2282	1249	1033	1938	1043	895	343	206	137	1	-	1
65-69	2639	1524	1115	2306	1324	982	332	200	132	1	-	1
70-74	2520	1452	1068	2215	1268	947	304	184	120	1	-	1
75-79	2175	1240	935	1927	1091	836	246	148	98	2	1	1
80-84	1642	861	781	1497	782	715	145	79	66	-	-	-
85-89	937	464	473	876	429	447	61	35	26	-	-	-
90+	501	211	290	466	192	274	35	19	16	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	16785	9122	7663	14621	7866	6755	2156	1254	902	8	2	6
Median Age At Last Birthday	68	68	68	69	69	69	65	66	65	*	*	*

Table 2.14
Cancer Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	183.3	204.7	163.1	187.6	206.3	169.8	158.7	195.0	126.1
Under 1 Year	3.6	*	*	4.5	*	*	*	*	*
1-14 Years	4.9	5.3	4.5	4.9	5.5	4.3	4.9	4.3	5.4
15-24 Years	5.4	6.3	4.5	5.7	6.5	4.8	4.0	5.3	*
25-34 Years	13.6	14.4	12.9	13.2	14.0	12.4	16.2	16.9	15.6
35-44 Years	47.4	39.7	55.0	46.5	39.1	53.8	53.4	43.2	62.2
45-54 Years	170.0	178.3	162.2	159.2	160.8	157.6	244.3	308.6	191.5
55-64 Years	450.8	526.6	383.5	429.4	491.9	373.8	617.8	802.7	458.2
65-74 Years	901.2	1194.5	675.2	885.4	1166.3	669.1	1032.2	1428.0	725.7
75-84 Years	1357.1	2024.4	966.9	1343.5	2011.1	959.1	1489.3	2142.1	1047.5
85 Years and Over	1621.6	2540.7	1228.5	1631.7	2529.3	1249.7	1491.8	2677.2	950.7
Age-Adjusted Rate[2]	138.7	173.3	114.3	134.6	166.8	112.3	170.0	224.9	128.1

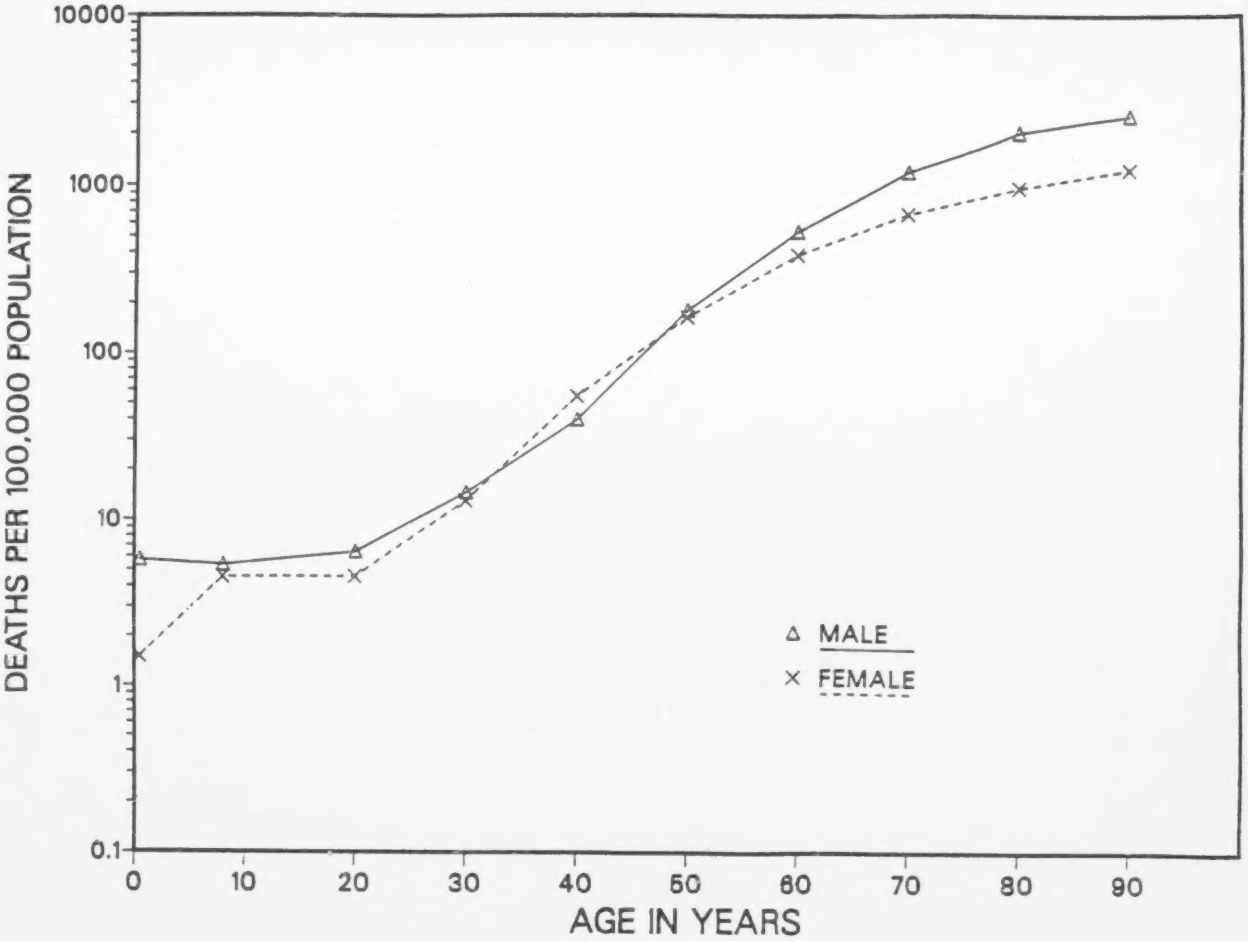
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.11
AGE-SPECIFIC CANCER DEATH RATES[1] BY SEX,
MICHIGAN RESIDENTS, 1983



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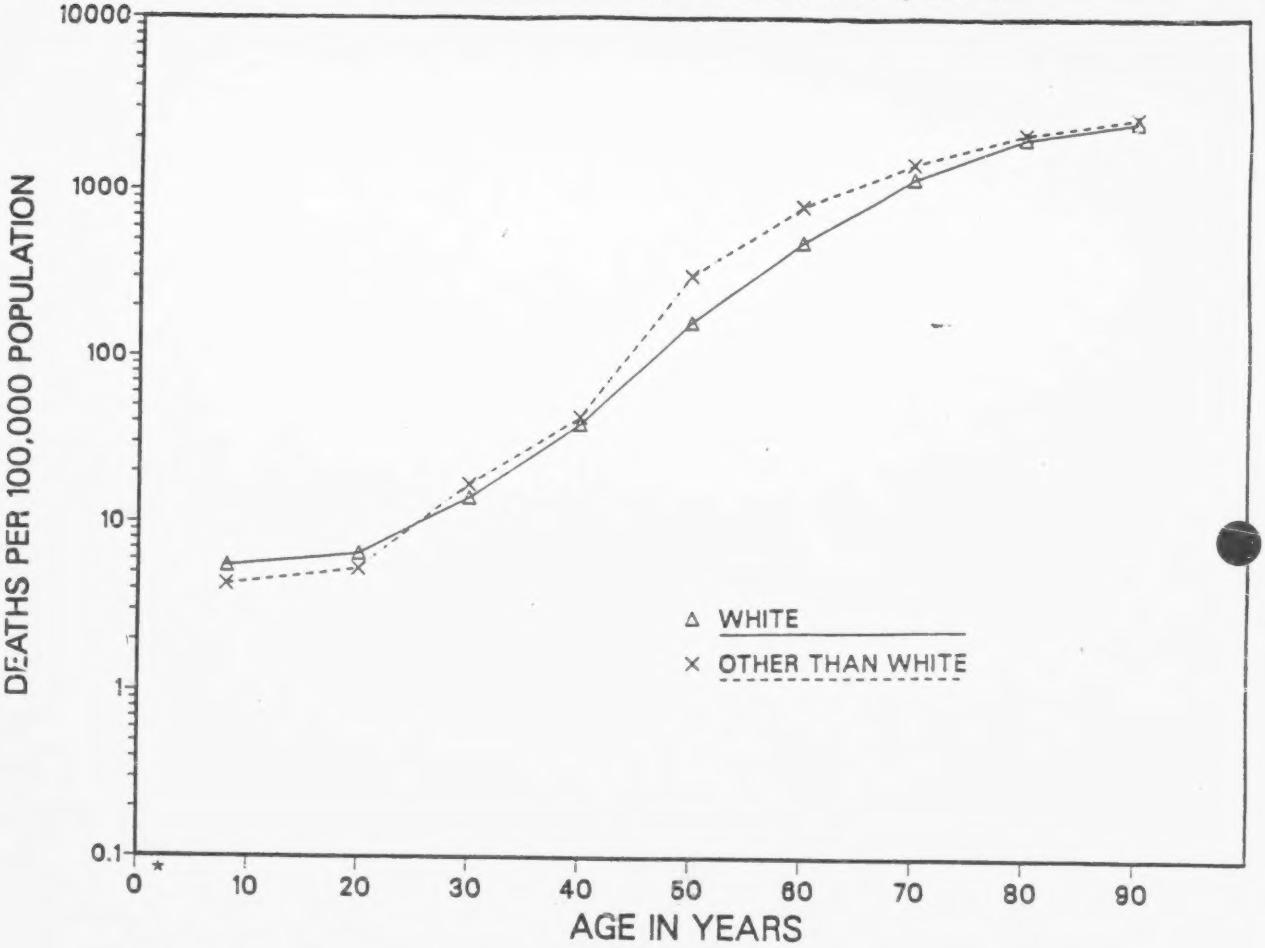
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.12
AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1983



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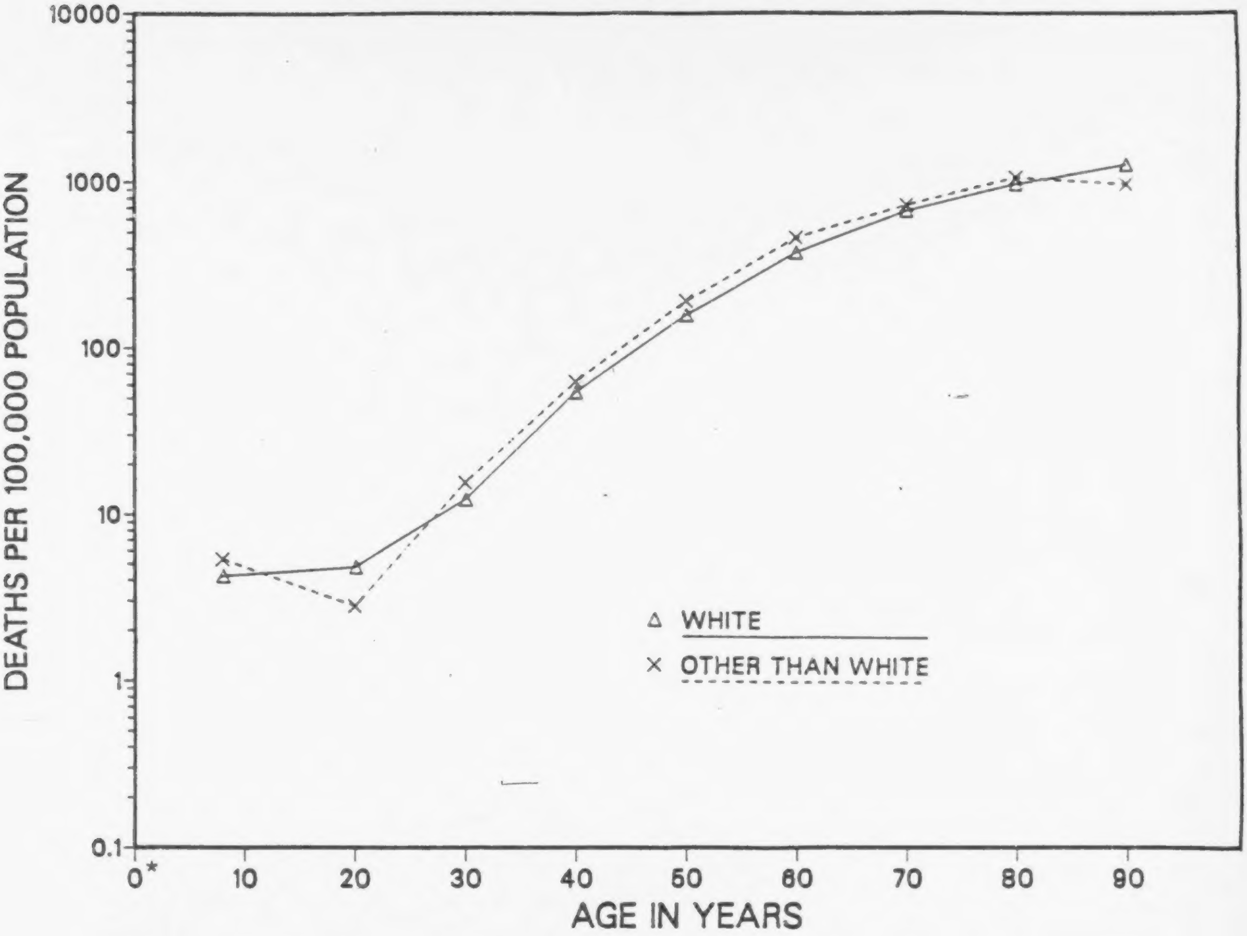
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.13
AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

females was again higher. The crude rate for white females was 34 percent higher than the crude rate for other than white females. The age-adjusted rate for other than white females, however, was 14.1 percent greater than that for white females.

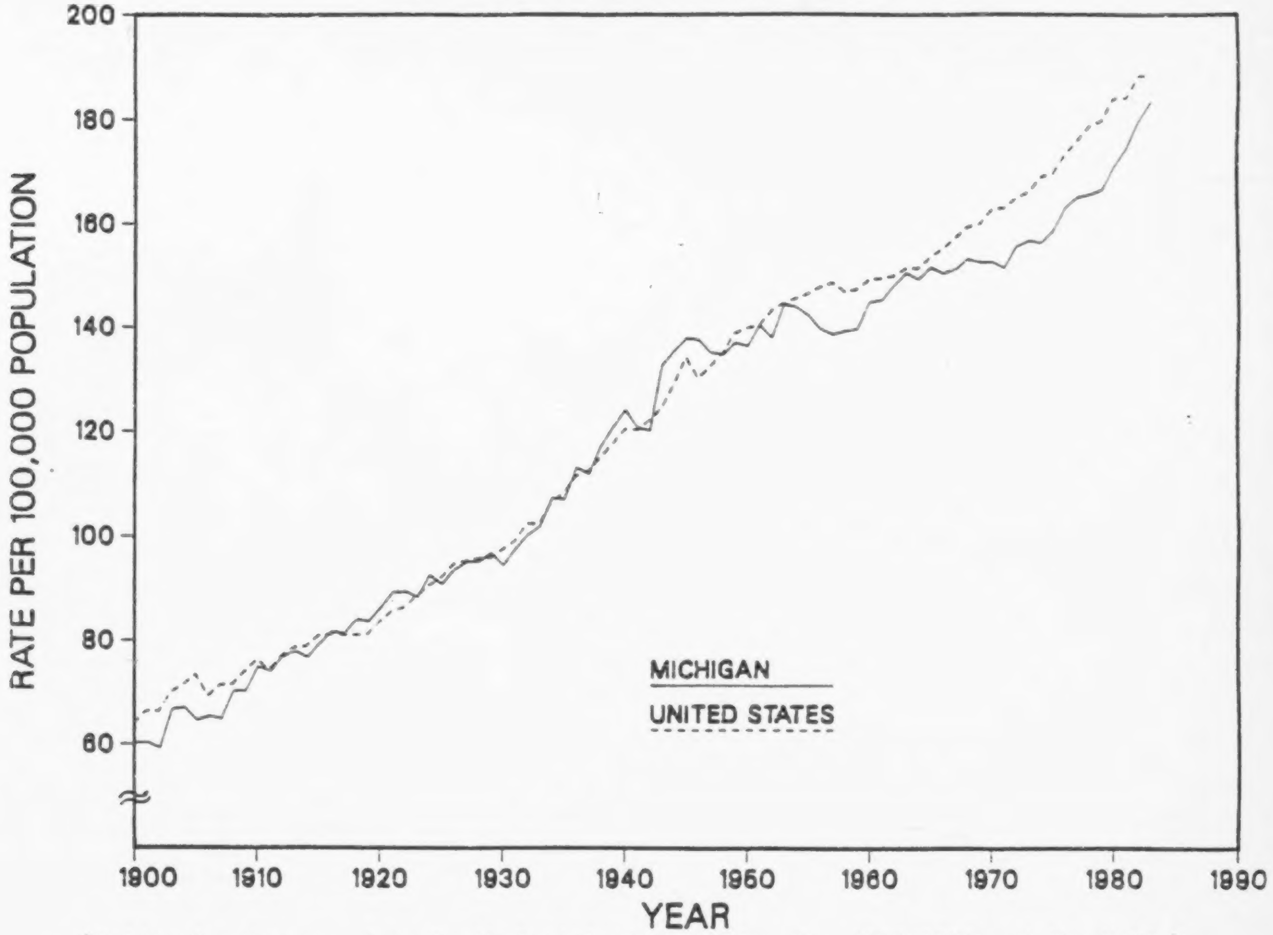
Among the major cause of death categories, cancer death rates have increased most persistently during the 20th century (Figure 2.14). The rate increased for the ninth consecutive year in 1983 to 183.3, the highest observed in this century. The 1983 rate surpassed by 2.1 percent the previous high rate of 179.5 in 1982. The lowest observed rate for Michigan was 59.3 in 1902. Michigan's cancer death rate was below the national rate from 1900 through 1915. During the period 1916 through 1947 Michigan's rate was generally close to the national rate. Since 1948, the state rate has been consistently below the national cancer death rate. The national cancer death rate in 1983 was an estimated 188.3. This is 2.7 percent above the state rate.

Age-adjusted cancer death rates for the years since 1970 presented in Table 2.15 show a much closer relationship between Michigan and United States mortality patterns than that indicated by crude mortality rates. Michigan's 1970 age-adjusted rate for the total population was 3.7 percent higher than the comparable U.S. rate. Since 1970, Michigan's age-adjusted cancer death rate has remained relatively stable as did the U.S. rate . Michigan's 1983 age-adjusted cancer death rate was 138.7. The provisional figure for 1983 was 132.3 for the United States (see Technical Notes).

Table 2.15 contains a comparison of age-adjusted cancer death rates for white males, white females, other than white males and other than white females. The rates for the other than white groups were consistently higher than those for their white counterparts. Rates for white males and other than white males have increased nationally while the rates in Michigan for these groups had remained quite stable until 1982 and 1983 when some increase became evident. Age-adjusted rates other than white females were essentially stable both in Michigan and the nation with some increase observed for white females.

The numbers of deaths from cancer for 50 different sites are presented in Table 2.16. Malignant neoplasms of the trachea, bronchus, and lung were the underlying cause of 4,444 deaths, 26.5 percent of all cancer deaths. Cancer of other and unspecified parts of the colon was the second leading cause of cancer mortality (1,465 deaths). The third most frequent category of cancer mortality was cancer of the female breast (1,457). The total number of deaths attributed to colon cancer was 1,608. Malignant neoplasms of the prostate and the pancreas caused 928 and 831 deaths,

FIGURE 2.14
CANCER DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1983[2]



[1] National rates are from Death Registration States for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Cancer death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.15
Age-Adjusted Cancer Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	134.7	164.7	110.1	131.9	160.2	109.1	159.4	206.6	117.1
	1971	131.6	159.0	109.7	128.6	154.8	107.9	158.3	197.3	123.7
	1972	133.8	163.2	111.0	130.6	159.3	108.6	161.2	196.6	130.9
	1973	133.8	163.1	110.7	130.7	158.7	108.9	159.9	202.3	123.9
	1974	131.9	160.6	109.6	129.0	156.1	108.2	155.9	198.7	119.8
	1975	131.7	161.6	108.9	128.1	155.4	107.7	162.1	215.2	117.7
	1976	134.1	165.5	110.2	130.7	159.6	109.0	163.0	215.8	119.1
	1977	134.5	168.8	108.5	130.5	162.5	106.5	168.6	222.1	125.1
	1978	133.7	166.7	109.2	130.2	160.7	107.8	162.1	217.1	118.1
	1979	131.8	165.2	107.0	128.2	160.0	105.0	160.6	208.6	122.2
	1980	134.4	167.8	109.7	130.7	161.8	107.9	163.9	216.6	122.2
	1981	135.3	164.4	114.4	130.8	157.3	112.2	171.1	223.3	130.7
	1982	137.9	170.7	114.5	134.3	164.9	113.0	166.6	218.0	127.1
	1983	138.7	173.3	114.3	134.6	166.8	112.3	170.0	224.9	128.1
U.S.	1970	129.9	157.4	108.8	127.8	154.3	107.6	148.3	185.3	117.6
	1971	129.3	157.6	108.0	126.9	154.5	106.2	150.7	186.0	121.7
	1972	130.1	159.2	108.2	127.6	155.7	106.8	151.1	190.7	119.1
	1973	129.7	159.2	107.8	126.9	155.3	105.9	154.7	195.1	122.6
	1974	130.7	161.2	108.1	127.9	157.1	106.5	154.7	198.2	120.2
	1975	129.4	160.1	106.8	126.7	155.8	105.6	152.7	198.8	116.2
	1976	130.6	161.7	107.8	127.9	157.3	106.7	153.5	201.0	116.2
	1977	131.0	162.6	108.0	128.0	158.0	106.5	156.0	204.0	118.7
	1978	131.6	163.7	108.3	128.7	159.0	107.0	155.5	204.6	117.7
	1979	130.8	163.4	107.1	127.8	158.7	105.7	155.1	204.2	117.8
	1980	132.8	165.5	109.2	129.6	160.5	107.7	158.2	209.0	120.2
	1981	131.6	163.7	108.6	128.5	158.3	107.2	156.7	209.4	117.5
	1982	132.5	164.8	109.5	129.4	159.4	108.2	157.0	210.1	117.9
	1983	132.3[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1983

282 LIST' NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
57	Malignant Neoplasms of Trachea, Bronchus, and Lung	4,444	26.5
48	Malignant Neoplasms of Other and Unspecified Colon	1,465	8.7
63	Malignant Neoplasms of Female Breast	1,457	8.7
78	Malignant Neoplasms of All Other and Unspecified Sites	1,262	7.5
69	Malignant Neoplasms of Prostate	928	5.5
54	Malignant Neoplasms of Pancreas	831	5.0
42	Malignant Neoplasms of Stomach	495	2.9
67	Malignant Neoplasms of Ovary and Other Uterine Adnexa	415	2.5
75	Malignant Neoplasms of Brain	388	2.3
73	Malignant Neoplasms of Kidney and Other and Unspecified Urinary Organs	379	2.3
81	Other Malignant Neoplasms of Lymphoid and Histiocytic Tissue	376	2.2
72	Malignant Neoplasms of Bladder	374	2.2
49	Malignant Neoplasms of Rectum, Rectosigmoid Junction, and Anus	332	2.0
41	Malignant Neoplasms of Esophagus	325	1.9
82	Multiple Myeloma and Immunoproliferative Neoplasms	279	1.7
84	Myeloid Leukemia	271	1.6
66	Malignant Neoplasms of Other Parts of Uterus	231	1.4
86	Other and Unspecified Leukemia	187	1.1
53	Malignant Neoplasms of Gallbladder and Extrahepatic Bile Ducts	180	1.1
83	Lymphoid Leukemia	180	1.1
61	Melanoma of Skin	165	1.0
79	Lymphosarcoma and Reticulosarcoma	162	1.0
56	Malignant Neoplasms of Larynx	152	0.9
65	Malignant Neoplasms of Cervix Uteri	148	0.9
52	Malignant Neoplasms of Liver not Specified as Primary or Secondary	119	0.7
39	Malignant Neoplasms of Pharynx	115	0.7
55	Malignant Neoplasms of Retroperitoneum, Peritoneum, and Other and Ill-Defined Sites within the Digestive Organs and Peritoneum	103	0.6
50	Malignant Neoplasms of Liver, Primary	96	0.6
60	Malignant Neoplasms of Connective and Other Soft Tissue	94	0.6
80	Hodgkin's Disease	94	0.6
40	Malignant Neoplasms of Other and Ill-Defined Sites within Lip, Oral Cavity, and Pharynx	86	0.5
38	Malignant Neoplasms of Tongue	72	0.4
47	Malignant Neoplasms of Cecum, Appendix, and Ascending Colon	72	0.4
46	Malignant Neoplasms of Sigmoid Colon	71	0.4

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1983 (continued)

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
77	Malignant Neoplasms of Thyroid Gland and Other Endocrine Glands and Related Structures	63	0.4
58	Malignant Neoplasms of All Other and Ill-Defined Sites within the Respiratory System and Intrathoracic Organs .	61	0.4
62	Other Malignant Neoplasms of Skin	61	0.4
59	Malignant Neoplasms of Bone and Articular Cartilage	48	0.3
68	Malignant Neoplasms of Other and Unspecified Female Genital Organs	43	0.3
51	Malignant Neoplasms of Intrahepatic Bile Ducts	30	0.2
43	Malignant Neoplasms of Small Intestine, including Duodenum	28	0.2
70	Malignant Neoplasms of Testis	21	0.1
85	Monocytic Leukemia	14	0.1
76	Malignant Neoplasms of Other and Unspecified Parts of Nervous System	13	0.1
74	Malignant Neoplasms of Eye	12	0.1
64	Malignant Neoplasms of Male Breast	11	0.1
71	Malignant Neoplasms of Penis and Other Male Genital Organs	11	0.1
44	Malignant Neoplasms of Hepatic and Splenic Flexures and Transverse Colon	10	0.1
45	Malignant Neoplasms of Descending Colon	7	0.0
37	Malignant Neoplasms of Lip	4	0.0
	Total	16,785	100.0

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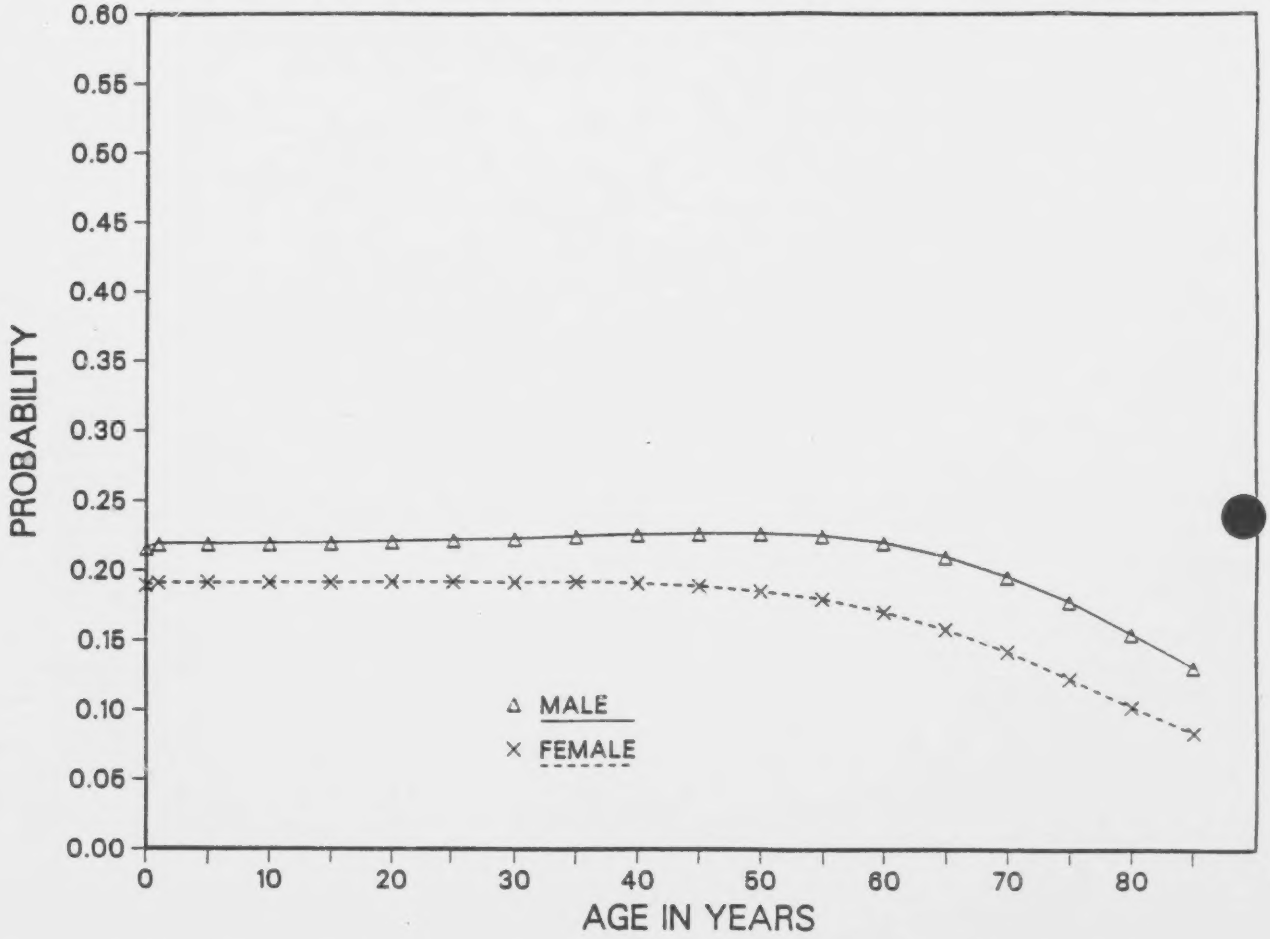
[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

respectively. There were 27 categories which had at least 100 deaths in 1983.

Based upon 1981 through 1983 death data, the probability of death due to cancer is 0.217 for males and 0.189 for females at birth (Figure 2.15). The probability of eventually dying from cancer is greater for males than for females at all ages. The probability for males rises slowly to a peak of 0.228 by age 50 then declines to 0.131 at age 85. Probabilities for females display little change from birth to age 45, then diminish to 0.084 by age 85. This decreasing probability beyond age 45, noting the high cancer mortality rates of older age (Figure 2.11), indicates that age-specific death rates due to competing causes of death increase relatively faster with advancing age.

FIGURE 2.15
PROBABILITY OF EVENTUALLY DYING FROM CANCER BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CEREBROVASCULAR DISEASE

Deaths due to cerebrovascular disease (stroke) numbered 5,721 in 1983 or 7.5 percent of the 76,639 total Michigan resident deaths. This is 118 fewer stroke deaths than were observed in 1982. Of the total in 1983, 59.4 percent were to females.

The median age at death from stroke was 79 years (Table 2.17). The median age for females was 81 years, 5 years higher than that for males. Deaths for white persons due to cerebrovascular disease displayed median ages several years higher than those for other than white persons. The median age was 67 years for other than white males and 77 years for white males. The median was 72 years for other than white females. This was 10 years less than that for white females (82 years).

The cerebrovascular disease death rate was 62.5 in 1983. The rate for females (72.3) was much higher than the rate for males (52.1). The age-specific death rates recorded in Table 2.18 and displayed in Figure 2.16 indicate that rates for males and females were similar below age 55. The rates for both sexes increased markedly in the older age groups. Rates for males were above those of females from age 55 through 84. Among persons 85 years of age or older the rate for females was above that for males. The crude death rate for females exceeded that for males because of the larger proportion of women in the high risk older age groups. The age-adjusted rate of 40.1 for males was 17.3 percent higher than the age-adjusted rate of 34.2 for females.

Cerebrovascular disease death rates by age and race from Table 2.18 are graphically displayed in Figures 2.17 and 2.18. Rates for other than white males and females were higher than comparable rates for white persons in all age groups below age 85 with sufficient events to calculate rates. The relative differentials progressively decreased in the older age groups. Rates for white persons were considerably higher than those for other than white persons beyond age 84. Although the crude rates for white males and females were, respectively, 4 percent and 28 percent higher than rates for other than white persons, age-adjusted rates indicate an opposite relationship. The cerebrovascular disease age-adjusted death rate for other than white males was 54 percent higher than that for white males, while for other than white females the age-adjusted rate was 64 percent higher than that for white females.

The historic pattern of cerebrovascular disease death rates has been one of strong variation (Figure 2.19). During the time period 1900-1949, the rates in Michigan ranged from a low of 83.9 in 1902 to a high of 110.0 eight

Table 2.17
Deaths Due to Cerebrovascular Disease by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	2	-	2	1	-	1	-	-	-	1	-	1
1-4	2	-	2	2	-	2	-	-	-	-	-	-
5-9	3	1	2	3	1	2	-	-	-	-	-	-
10-14	2	1	1	2	1	1	-	-	-	-	-	-
15-19	7	3	4	5	2	3	2	1	1	-	-	-
20-24	12	8	4	6	4	2	6	4	2	-	-	-
25-29	14	6	8	9	4	5	5	2	3	-	-	-
30-34	23	12	11	10	5	5	13	7	6	-	-	-
35-39	38	22	16	20	9	11	18	13	5	-	-	-
40-44	67	30	37	41	15	26	26	15	11	-	-	-
45-49	79	40	39	47	25	22	32	15	17	-	-	-
50-54	126	66	60	98	51	47	28	15	13	-	-	-
55-59	213	112	101	157	82	75	56	30	26	-	-	-
60-64	335	175	160	248	137	111	86	38	48	1	-	1
65-69	493	251	242	411	212	199	82	39	43	-	-	-
70-74	657	340	317	559	299	260	98	41	57	-	-	-
75-79	941	415	526	835	366	469	105	49	56	1	-	1
80-84	999	384	615	913	349	564	85	35	50	1	-	1
85-89	932	275	657	880	262	618	52	13	39	-	-	-
90+	776	183	593	725	174	551	49	8	41	2	1	1
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	5721	2324	3397	4972	1998	2974	743	325	418	6	1	5
Median Age At Last Birthday	79	76	81	80	77	82	70	67	72	*	*	*

Table 2.18
Cerebrovascular Disease Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	62.5	52.1	72.3	63.8	52.4	74.8	54.7	50.5	58.4
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.4	*	0.6	0.5	*	0.7	*	*	*
15-24 Years	1.0	1.2	0.9	0.7	0.8	0.7	2.9	3.8	*
25-34 Years	2.3	2.2	2.3	1.4	1.3	1.5	7.3	8.0	6.7
35-44 Years	10.4	10.5	10.3	7.0	5.5	8.4	32.6	44.8	22.1
45-54 Years	23.3	24.8	21.8	18.8	20.1	17.6	53.5	59.3	48.7
55-64 Years	62.1	69.2	55.8	51.9	59.5	45.2	142.0	146.7	137.8
65-74 Years	200.9	237.2	172.9	189.9	229.9	159.1	292.1	297.5	288.0
75-84 Years	689.7	769.9	642.9	686.2	767.3	639.6	723.7	792.7	677.0
85 Years and Over	1926.0	1723.9	2012.6	1953.9	1779.9	2028.0	1569.5	1041.2	1810.8
Age-Adjusted Rate[2]	36.8	40.1	34.2	34.3	37.6	31.8	54.9	57.9	52.0

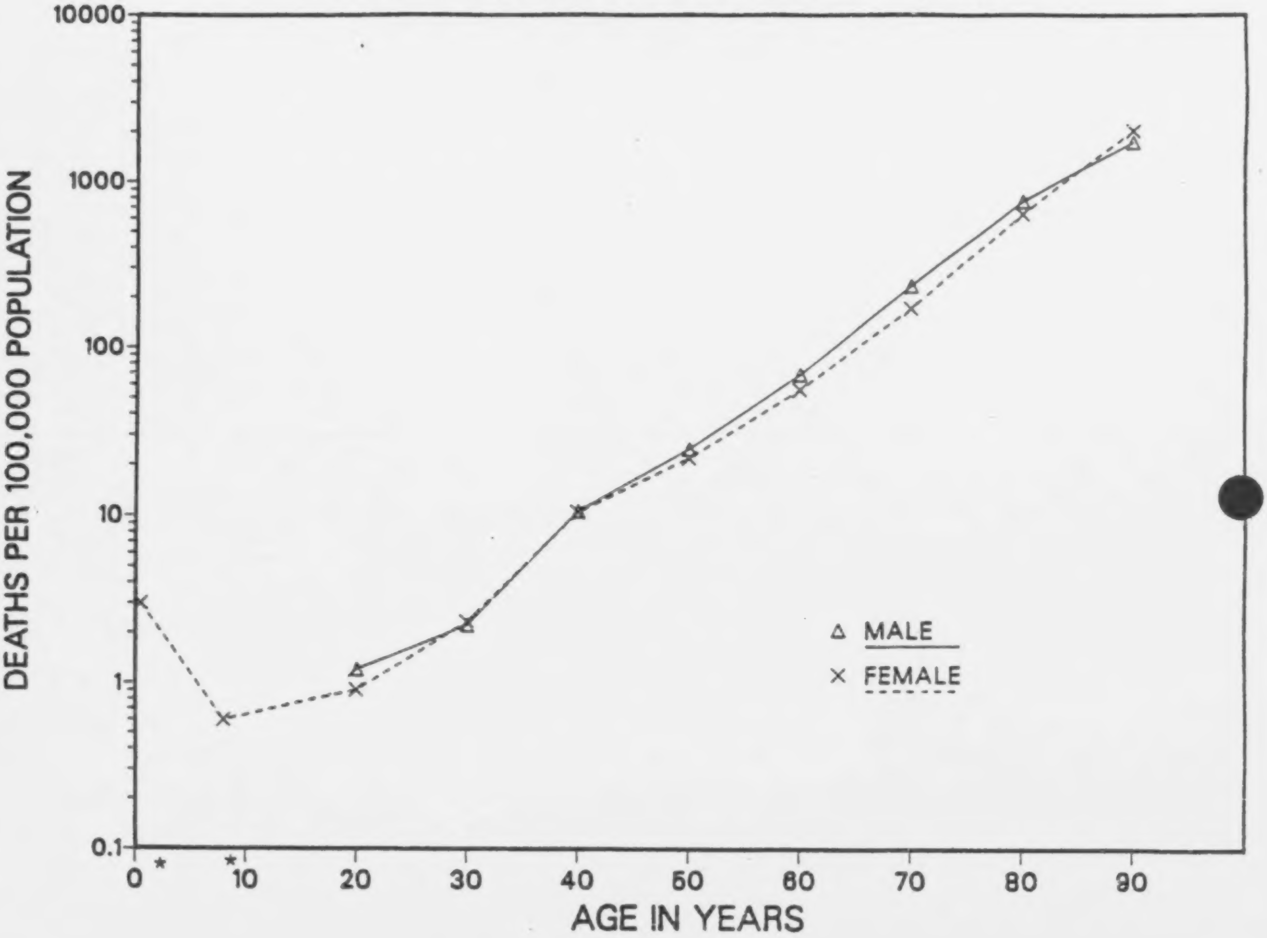
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.16
AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1983



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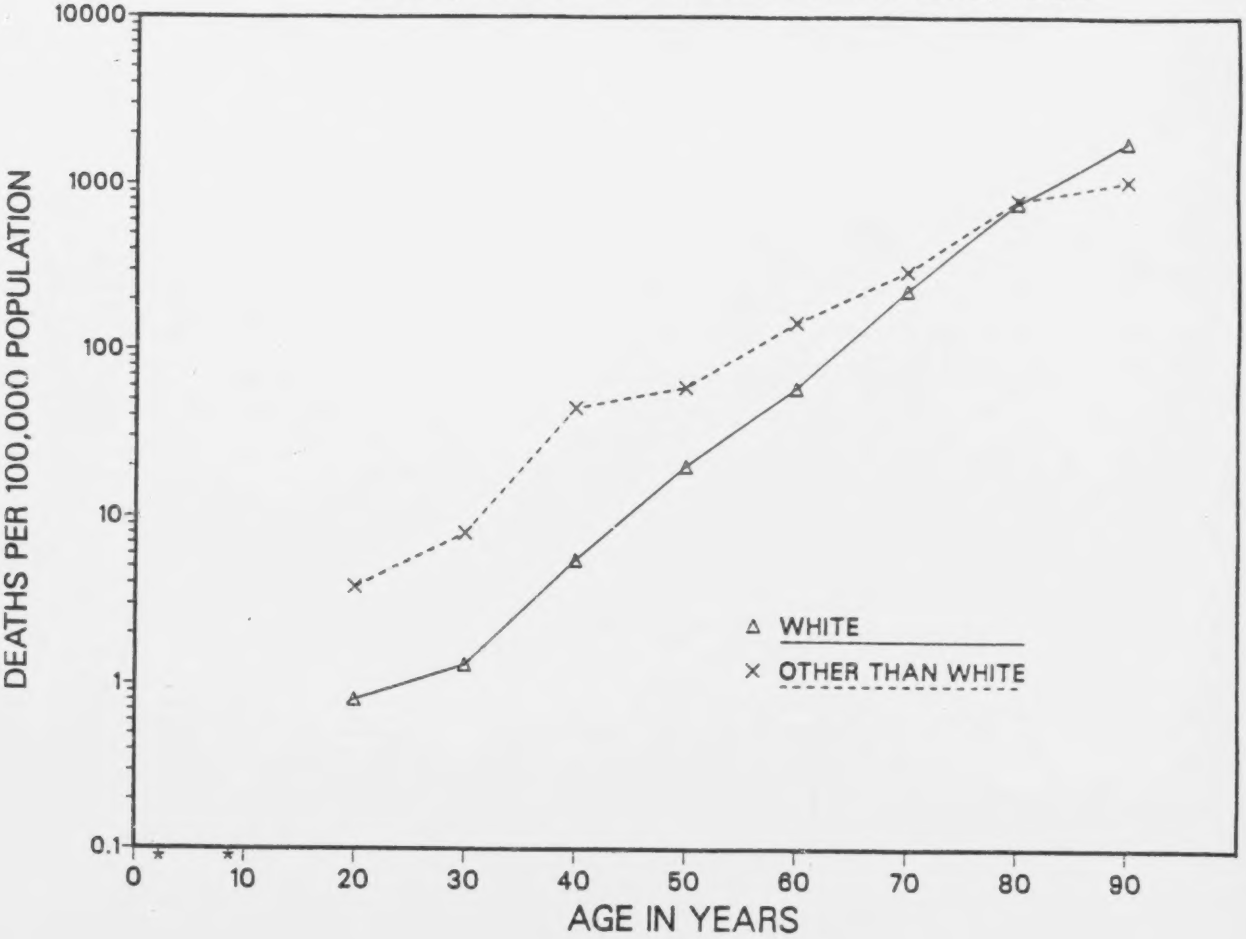
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.17

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1983

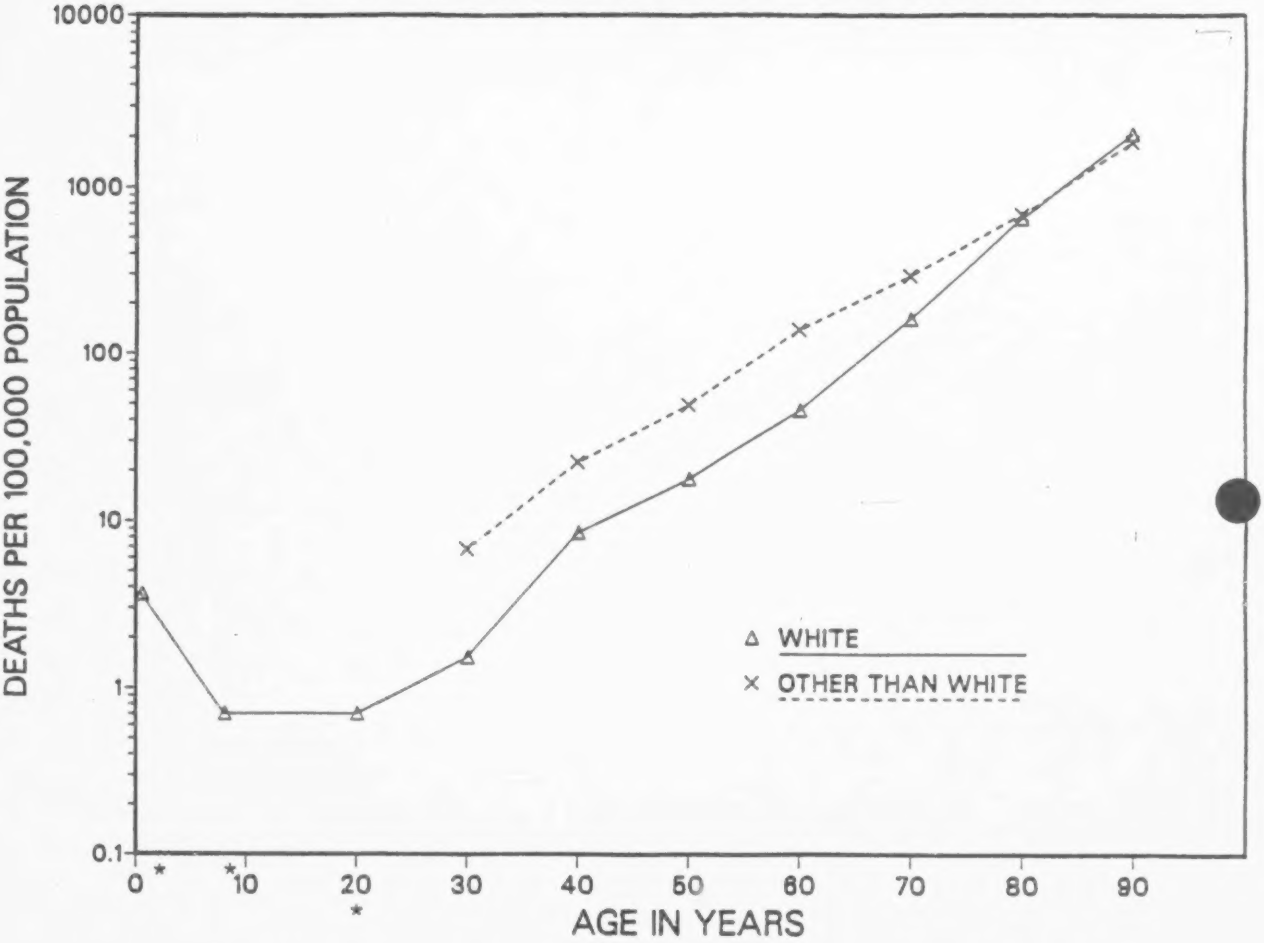


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.18

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1983

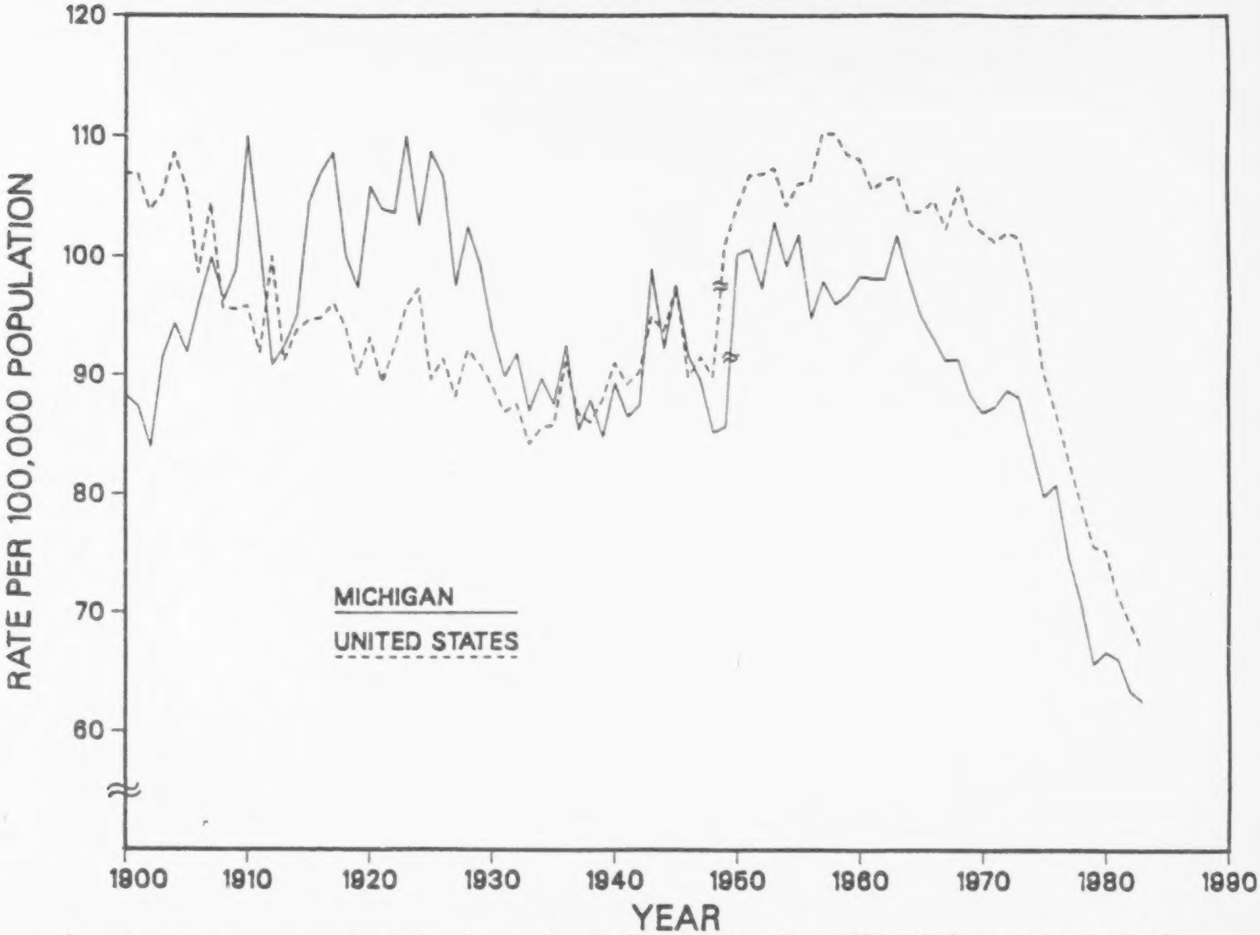


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.19

CEREBROVASCULAR DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1983[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] The comparability of cerebrovascular disease death rates from the 5th revision of ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be 1.16. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cerebrovascular disease death rates through the 6th, 7th, 8th and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates can be made but detailed study requires special consideration. See Technical Notes.

years later. The national high and low rates for the years 1900-1948 were, respectively, 108.6 in 1904 and 84.1 in 1933. Rates for Michigan were below national rates from 1900 through 1907 but were generally, and sometimes markedly, higher from 1908 through 1938. Michigan and national rates were very similar over the next eight years, whereupon the Michigan rate slipped below the national rate and has so remained since 1947.

The 6th revision to ICD cause of death coding was adopted in the year 1949 nationally and in 1950 in Michigan. This revision resulted in a lack of direct comparability between cerebrovascular disease death rates prior to these dates and those after adoption. Since the significant change in coding procedures, the cerebrovascular disease death rate in Michigan has ranged from a high of 102.8 in 1953 to a low of 62.5 in 1983. Recent rates over the last eighteen years have shown a clear downward tendency both nationally and in Michigan. The rate of 62.5 for Michigan in 1983 was 30 percent below the rate of 1973. In 1983 the Michigan rate was 6.4 percent below the provisional United States rate of 66.8.

Age-adjusted rates for cerebrovascular disease deaths by race and sex are presented in Table 2.19. These rates have declined by approximately 40 percent since 1970 for each sex-race group in Michigan. Rates for other than white persons, however, remained substantially above rates for white persons throughout the period. Rates for the United States showed a similar pattern of decline. However, while Michigan and national rates were quite similar for white males and females, the state age-adjusted rates for other than white males and females were lower than comparable national rates (see Technical Notes).

Acute but ill-defined cerebrovascular disease was most frequently given as the type of cerebrovascular disease causing death (2,764 deaths). Second in frequency was cerebral thrombosis and unspecified occlusion of cerebral arteries which caused 1,066 deaths in 1983 (Table 2.20). These two cause of death categories comprised 66.9 percent of all stroke deaths. Intracerebral and other intracranial hemorrhage caused 792 stroke deaths.

Based upon the mortality experience of 1981 through 1983, at birth a Michigan male faces a 0.067 chance of dying from cerebrovascular disease while the probability for a female at birth is 0.109. For both sexes the probability of eventual death due to this cause increases with advancing age. At all ages females are more likely to eventually die from this cause than are males (Figure 2.20). This results primarily from the higher risks from competing causes for males. At age 60 probabilities for males start rising appreciably, reaching 0.099 by age 85. Data for females

Table 2.19
Age-Adjusted Cerebrovascular Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	64.7	70.8	59.9	61.5	67.9	56.5	93.9	95.4	92.2
	1971	63.7	72.5	56.7	61.0	70.4	53.5	86.9	89.1	84.9
	1972	63.3	69.5	58.2	60.6	66.6	55.6	84.8	91.8	78.2
	1973	61.4	67.4	56.4	58.9	65.0	53.9	80.8	86.2	76.4
	1974	57.8	64.7	52.2	55.5	62.4	50.0	74.6	81.6	68.2
	1975	53.9	60.1	49.0	52.1	57.9	47.6	67.3	77.2	59.0
	1976	53.1	58.0	49.3	51.2	56.2	47.3	67.2	71.9	63.3
	1977	48.4	54.0	44.0	46.4	51.9	42.2	64.2	71.9	58.2
	1978	45.2	49.3	42.0	42.9	47.3	39.6	62.7	63.8	61.1
	1979	40.9	46.3	36.8	38.6	44.0	34.6	58.6	64.3	53.8
	1980	40.6	44.9	37.4	38.1	42.4	35.0	59.4	64.1	55.6
	1981	40.0	43.2	37.7	37.5	40.8	35.2	58.2	61.2	55.4
	1982	37.4	42.2	33.7	35.3	40.0	31.8	52.9	59.1	47.8
	1983	36.8	40.1	34.2	34.3	37.6	31.8	54.9	57.9	52.0
U.S.	1970	66.3	73.2	60.8	61.8	68.8	56.2	107.0	113.5	101.4
	1971	65.0	72.7	59.1	60.9	68.7	54.9	102.0	109.4	95.8
	1972	64.6	72.3	58.6	60.6	68.4	54.5	100.6	107.6	94.8
	1973	63.1	69.9	57.9	59.0	65.8	53.9	98.6	106.4	92.3
	1974	59.2	65.9	54.1	55.7	62.4	50.8	89.7	98.0	83.0
	1975	53.7	60.0	49.0	50.6	56.7	46.1	80.8	88.9	74.2
	1976	50.6	56.1	46.5	47.6	53.0	43.6	76.2	84.1	69.9
	1977	47.3	52.7	43.3	44.4	49.7	40.6	71.7	79.3	65.6
	1978	44.4	49.1	40.8	41.6	46.0	38.4	67.6	76.1	60.9
	1979	41.6	45.9	38.3	38.9	42.9	35.9	63.6	71.8	57.1
	1980	40.8	44.9	37.6	38.0	41.9	35.2	62.9	70.5	57.0
	1981	38.1	41.7	35.4	35.6	38.9	33.1	58.6	65.6	53.2
	1982	35.8	39.2	33.2	33.4	36.6	31.0	54.8	61.8	49.6
	1983	34.3[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

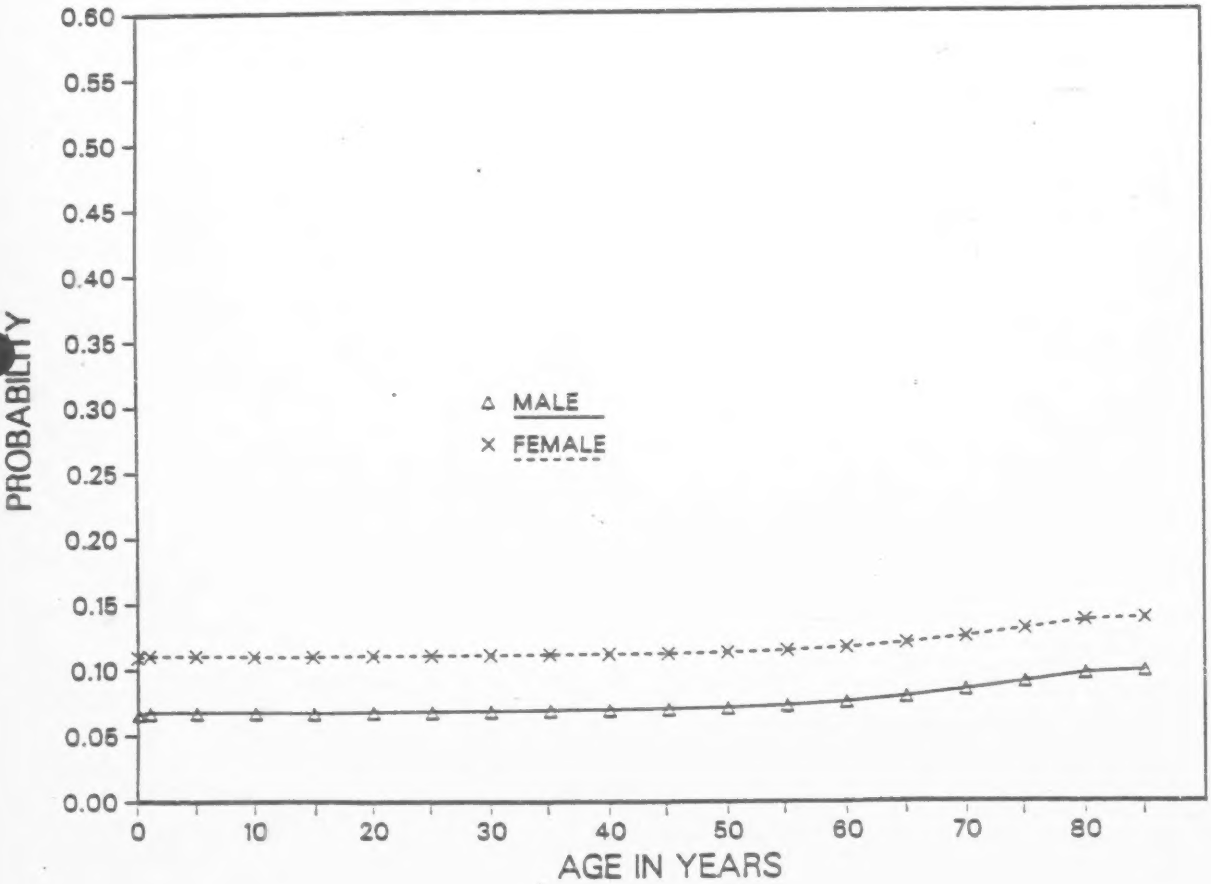
Table 2.20.
Deaths Due to Cerebrovascular Diseases by Specific Cause, Michigan Residents, 1983

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
154	Acute but Ill-Defined Cerebrovascular Disease . .	2,764	48.3
152	Cerebral Thrombosis and Unspecified Occlusion of Cerebral Arteries	1,066	18.6
150	Intracerebral and Other Intracranial Hemorrhage .	792	13.8
155	Other and Late Effects of Cerebrovascular Diseases	767	13.4
149	Subarachnoid Hemorrhage	252	4.4
151	Occlusion and Stenosis of Precerebral Arteries . .	55	1.0
153	Cerebral Embolism	25	0.4
	Total	5,721	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.20

PROBABILITY OF EVENTUALLY DYING FROM CEREBROVASCULAR DISEASE BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983



reveal a similar tendency, though the increase is more moderate. The peak probability for females is 0.139 at age 85.

ACCIDENTS

About 3.8 percent of all Michigan resident deaths in 1983 were attributed to accidents. The total of 2,947 accidental deaths is 166 fewer than in 1982. In 1983 69.5 percent of the total accidental deaths were to males.

The median age at death among accident victims was 37 years (Table 2.21). The median age among males was 33, 22 years lower than the 50 year median for females. This differential is predominantly traceable to the age at death distribution of white females. The median age of accidental death for white males was 33 years compared to 34 years for other than white males. For white females who died from accidents the median of 60 years was 14 years higher than that for their other than white counterparts.

Accidental deaths among white males were especially concentrated in the 15-19 year and 20-24 year age ranges. These two age groups accounted for 26.6 percent of accidental deaths for white males compared to less than 16 percent for all other race/sex categories.

The crude death rate from accidents for males was 2.4 times that for females. Age-specific accident death rates for males were greater than those for females in all age groups. The differentials between rates for males and females were greatest between ages 15 and 44. In the 25-34 year age group, the rate for males was 4.6 times that for females. The age-adjusted death rate for males was 2.9 times that for females (Table 2.22).

Accident mortality rates by sex contained in Table 2.22 are displayed graphically in Figure 2.21. Although age-specific rates for males are generally much higher than those for females, the patterns of change are quite similar. Mortality rates for children between 1 and 14 years of age were somewhat lower than those for infants under one year. The rates then rose sharply for both sexes in the 15-24 year age group. From this initial peak the rates for both groups declined somewhat, remained fairly constant through age 54, and then increased continuously beyond that age. The differential between the rates for males and females tapered gradually beyond age 55.

Age-specific accident death rates for white and other than white persons are graphically displayed in Figures 2.22 and 2.23. Rates for white males were higher than those for other than white males only in the 15-24 and 25-34 year age groups. While the crude accident death rates for white persons were higher than those for other than white persons the age-adjusted rates were similar. The rates for white females were similar to those for other than white females except for three age groups. At 15-24 and 85 years and over

Table 2.21
Deaths Due to Accidents by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	41	29	12	26	17	9	15	12	3	-	-	-
1-4	92	50	42	69	38	31	23	12	11	-	-	-
5-9	61	41	20	46	31	15	15	10	5	-	-	-
10-14	81	56	25	64	44	20	16	11	5	1	1	-
15-19	301	234	67	280	216	64	19	17	2	2	1	1
20-24	334	273	61	308	253	55	25	19	6	1	1	-
25-29	253	210	43	225	191	34	28	19	9	-	-	-
30-34	233	193	40	186	154	32	44	36	8	3	3	-
35-39	156	130	26	125	103	22	29	25	4	2	2	-
40-44	122	97	25	107	86	21	14	10	4	1	1	-
45-49	127	90	37	99	72	27	28	18	10	-	-	-
50-54	123	76	47	96	65	31	27	11	16	-	-	-
55-59	117	82	35	97	68	29	20	14	6	-	-	-
60-64	128	90	38	116	80	36	12	10	2	-	-	-
65-69	128	71	57	111	62	49	17	9	8	-	-	-
70-74	129	77	52	109	64	45	20	13	7	-	-	-
75-79	141	87	54	127	76	51	14	11	3	-	-	-
80-84	149	77	72	135	67	68	14	10	4	-	-	-
85-89	122	46	76	117	43	74	4	2	2	1	1	-
90+	109	38	71	104	36	68	5	2	3	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2947	2047	900	2547	1766	781	389	271	118	11	10	1
Median Age At Last Birthday	37	33	55	37	32	60	35	34	46	*	*	*

Table 2.22
Accident Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	32.2	45.9	19.2	32.8	46.5	19.6	28.8	42.5	16.5
Under 1 Year	29.9	41.5	17.9	23.2	29.6	16.4	60.4	96.1	*
1-14 Years	12.6	15.5	9.6	12.1	14.8	9.2	14.9	18.3	11.4
15-24 Years	34.8	55.2	14.1	38.1	60.0	15.7	16.0	27.1	5.6
25-34 Years	30.0	50.3	10.1	30.1	50.6	9.6	29.1	48.8	12.6
35-44 Years	27.5	45.7	9.9	26.7	44.0	9.7	32.6	57.6	11.1
45-54 Years	28.4	38.8	18.5	25.3	36.3	14.8	49.0	57.4	42.2
55-64 Years	27.8	41.5	15.6	27.2	40.2	15.7	32.0	51.8	14.9
65-74 Years	44.9	59.4	33.7	43.1	56.7	32.6	60.0	81.8	43.2
75-84 Years	103.1	158.0	71.0	102.7	153.5	73.5	106.7	198.2	44.7
85 Years and Over	260.5	316.2	236.7	269.9	325.8	246.1	139.9	*	113.2
Age-Adjusted Rate[2]	28.7	43.2	15.1	28.5	43.0	14.7	30.1	45.5	17.0

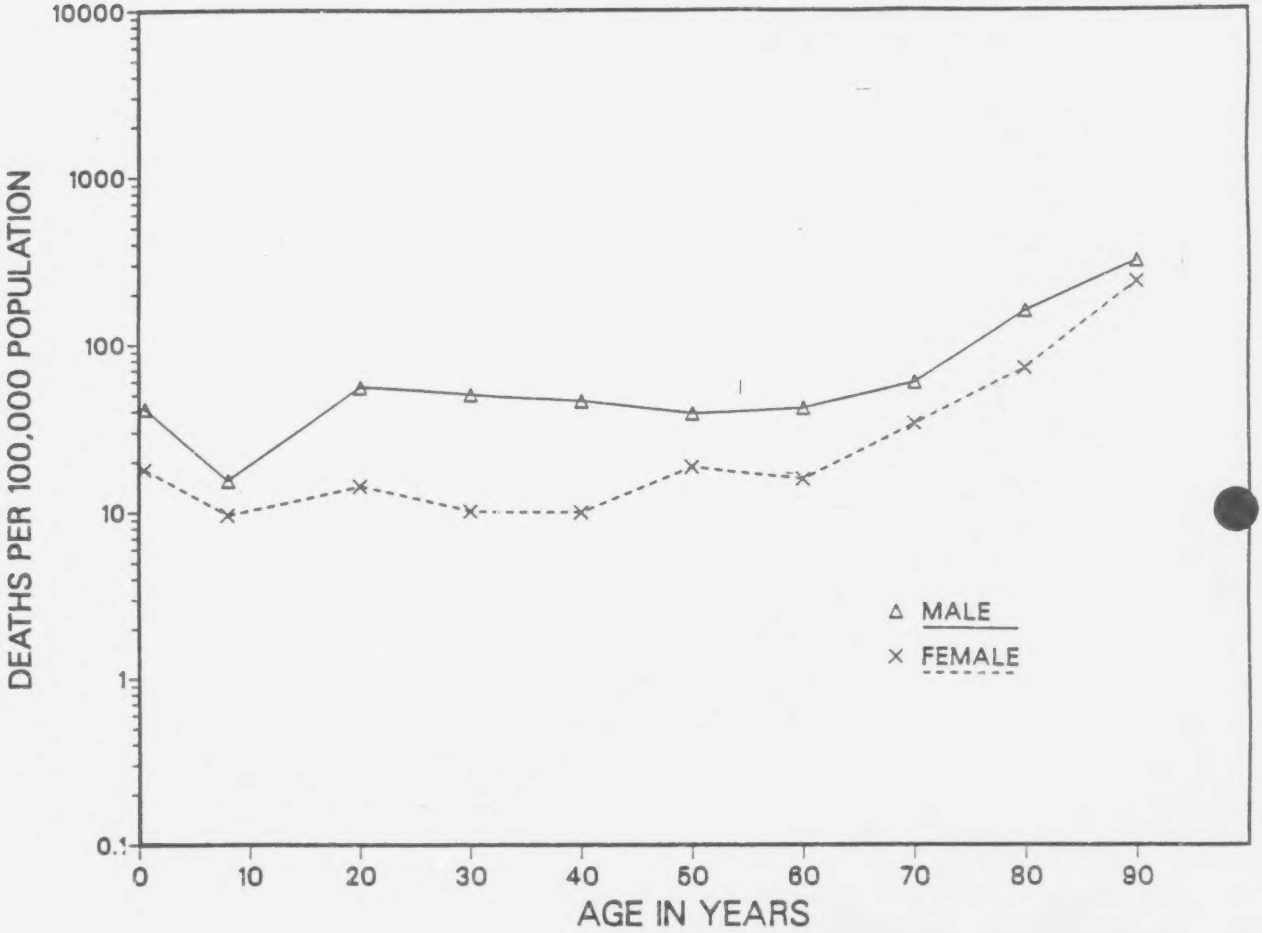
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

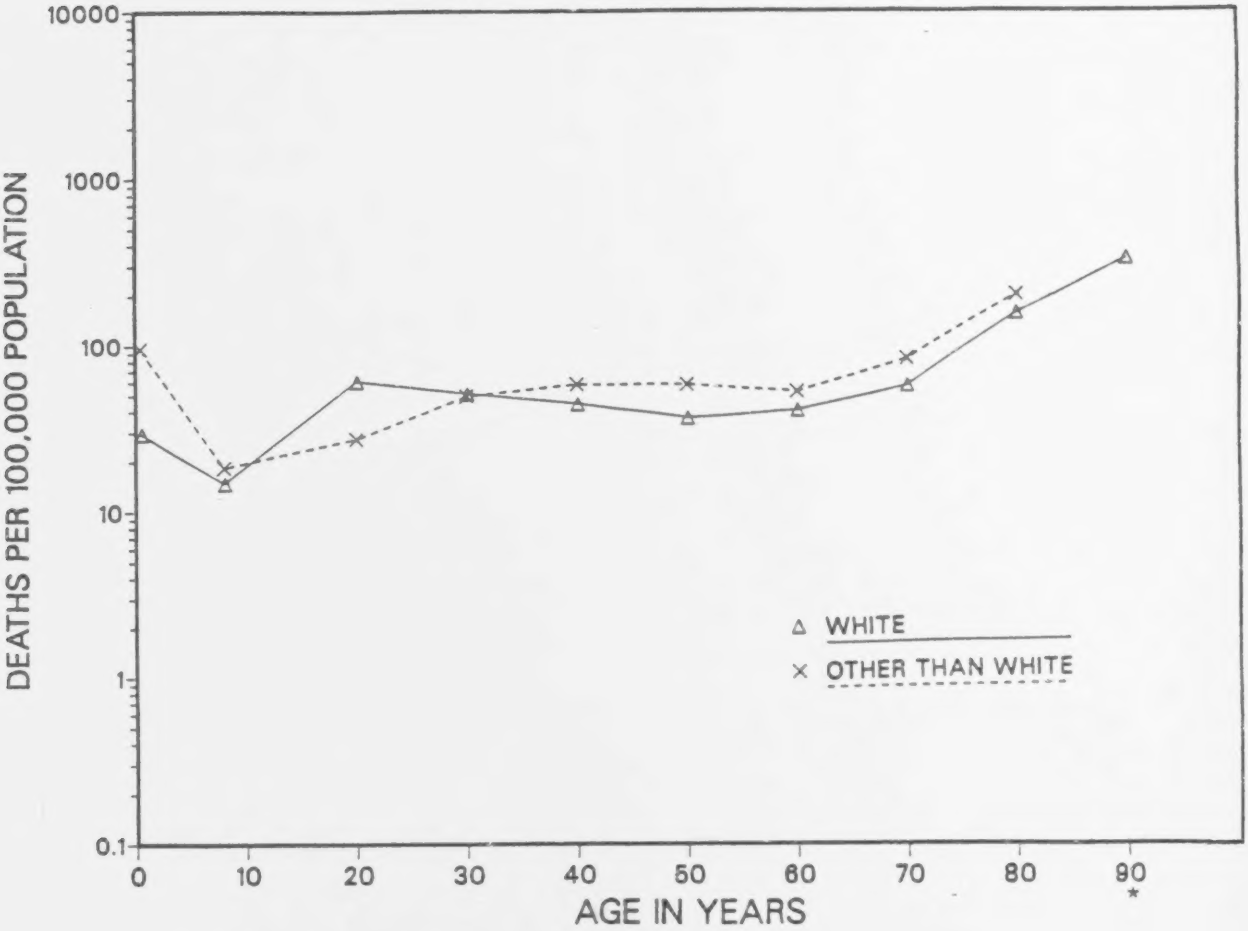
Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.21
AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.22
AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1983



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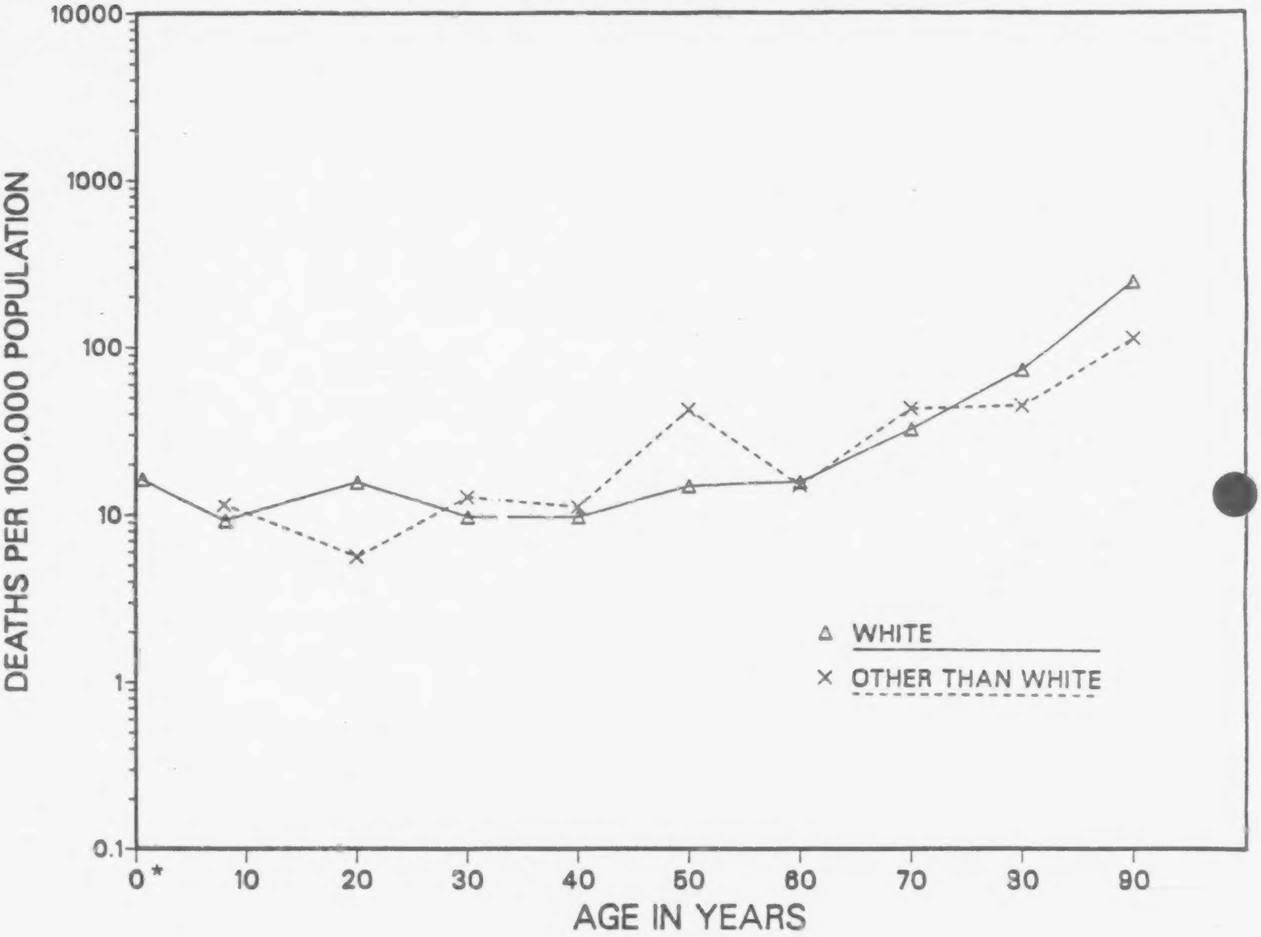
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.23
AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

the rate for whites was much higher while at ages 45-54 the rate for other than whites was above that for whites (Table 2.22).

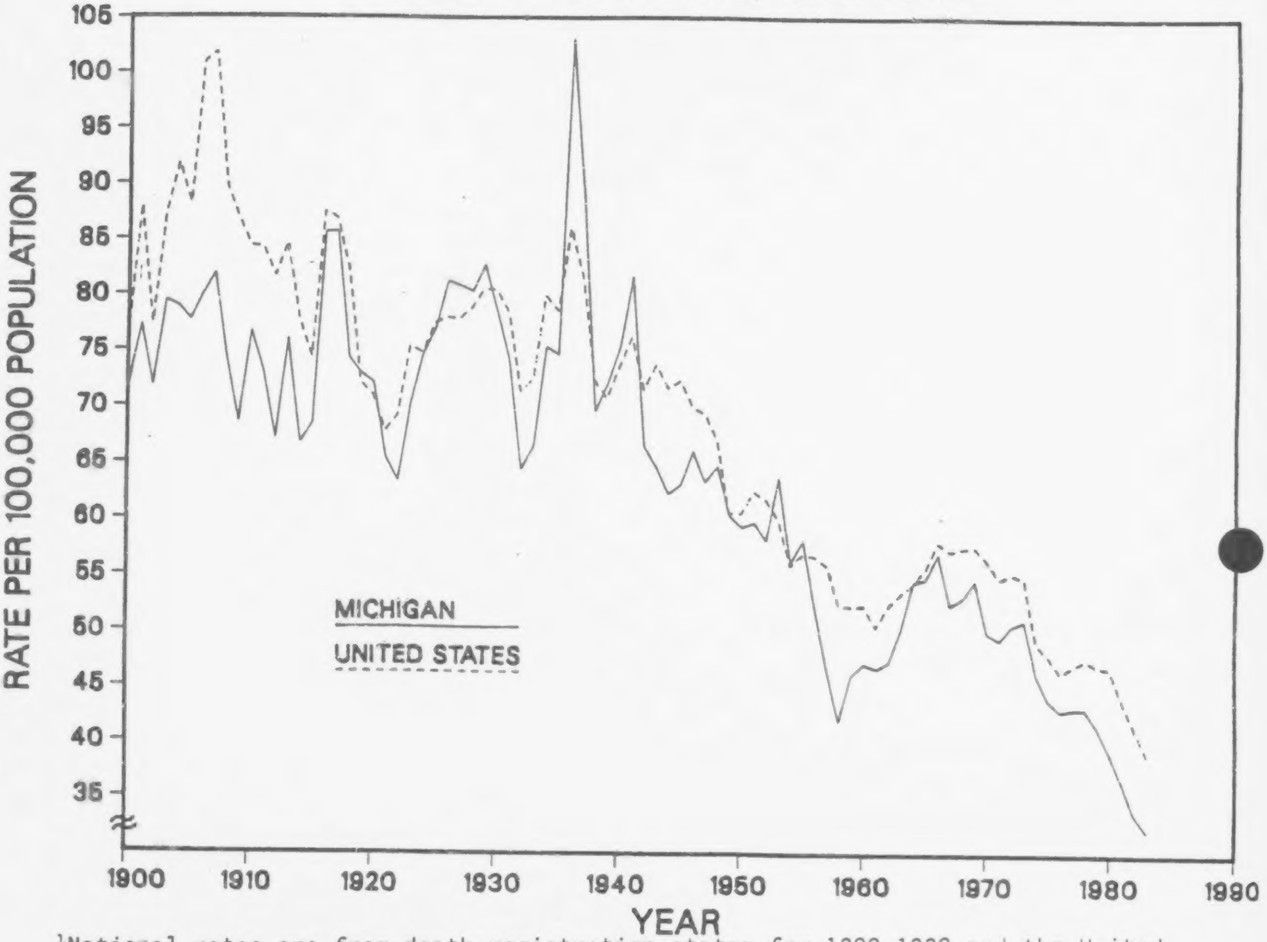
Michigan's accident death rate in 1900 was 71.9. The highest rate observed in this century was 103.1 in 1936, and the rate of 32.2 in 1983 is the lowest rate of the century. In nine of the last ten years the accident death rate has fallen or remained the same. The rate in 1983 was 4.5 percent lower than that of 1982.

The highest national accident death rate was 101.8 in 1907. The lowest national rate of the century is the provisional rate of 39.0 for 1983. Michigan's rates have been below national rates fairly consistently since 1900. The last time Michigan's rate was above that of the United States was in 1964. The accident death rate for Michigan in 1983 was 17.4 percent below the provisional rate for the nation (Figure 2.24).

Michigan's age-adjusted death rates for accidental deaths have also been below the comparable national rates since 1970 (Table 2.23). Between 1970 and 1983 Michigan's age-adjusted rate declined by 40.9 percent. Between 1970 and 1983 the national age-adjusted rate declined by 35.0 percent (see Technical Notes). Michigan's rate was 18 percent below the national rate in 1983. The age-adjusted rates by race and sex declined for each population subgroup during this period. The age-adjusted rate for white males fell least in Michigan, yet still declined by 38 percent. All other groups dropped by roughly 45 percent. Other than white female rates have been about 15 percent above those for white females since 1970. For males, other than white male rates have moved from 21 percent above the white male rate in 1970 to 6 percent higher in 1983. Nationally, the differential for other than white males moved from 52 percent in 1970 to 19 percent in 1982. In 1982 other than white female mortality was 10 percent above that for white females.

Motor vehicle accidents involving collision with another motor vehicle was the largest single cause of accidental death in 1983, resulting in 544 deaths (Table 2.24). Deaths from all types of motor vehicle accidents accounted for 1,419 deaths in 1983. Accidental falls of all types resulted in 475 deaths. Accidents caused by fires and flames, accidental drownings, and accidental poisonings caused 186, 172, and 141 deaths, respectively. Choking on food or other objects was the cause of 117 deaths, while accidents caused by handguns and other firearms resulted in the deaths of 32 Michigan residents. Medical misadventures and water transport accidents each accounted for 52 and 48 deaths in 1983, respectively(Table 2.5).

FIGURE 2.24
ACCIDENT DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1983[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Accidental death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.23
Age-Adjusted Accident Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	48.6	71.3	27.4	47.5	69.6	26.8	56.1	83.9	30.7
	1971	47.7	69.9	26.8	46.7	68.1	26.5	55.0	84.7	28.2
	1972	48.7	72.9	25.9	48.3	72.1	25.8	51.6	80.1	25.7
	1973	48.9	72.4	26.6	48.0	71.0	26.1	54.4	82.7	28.8
	1974	43.8	65.5	23.2	43.3	64.2	23.3	47.3	75.5	22.0
	1975	41.5	61.7	22.4	41.2	61.1	22.2	44.1	67.2	23.8
	1976	40.0	58.7	22.4	40.0	58.5	22.6	39.6	61.0	20.8
	1977	40.4	59.1	22.6	40.3	58.7	22.7	41.2	62.7	22.2
	1978	40.3	59.5	22.2	40.2	59.4	21.9	42.0	63.0	24.0
	1979	38.4	56.2	21.8	38.4	55.7	21.9	39.6	61.7	20.5
	1980	36.4	53.3	20.6	36.3	52.2	21.2	37.9	62.4	16.9
	1981	33.6	50.5	17.7	33.7	50.4	17.8	33.8	52.7	17.6
	1982	30.7	45.2	17.2	30.3	44.4	16.9	33.0	50.1	18.1
	1983	28.7	43.2	15.1	28.5	43.0	14.7	30.1	45.5	17.0
U.S.	1970	53.7	80.7	28.2	51.0	76.2	27.2	72.8	115.7	35.1
	1971	51.7	77.0	27.9	49.2	72.9	26.8	70.1	109.8	35.3
	1972	51.7	77.1	27.9	49.5	73.1	27.0	68.4	108.6	33.2
	1973	51.3	76.8	27.2	49.2	73.1	26.2	66.9	105.9	32.9
	1974	45.5	68.8	23.5	43.9	66.0	22.7	57.8	91.3	28.6
	1975	44.2	67.0	22.8	42.6	64.1	22.1	56.1	89.5	27.1
	1976	42.5	63.9	22.4	41.3	61.5	21.9	52.3	83.4	25.3
	1977	43.1	64.5	22.8	41.9	62.2	22.4	52.1	83.1	25.2
	1978	43.5	65.4	22.9	42.5	63.4	22.4	51.5	81.7	25.6
	1979	42.9	64.9	21.9	42.0	63.3	21.6	49.3	78.9	23.9
	1980	42.3	64.0	21.8	41.5	62.3	21.4	49.5	78.4	24.8
	1981	39.8	60.2	20.4	39.3	59.1	20.2	44.0	70.4	21.4
	1982	36.6	55.2	18.9	36.1	54.1	18.7	40.8	64.5	20.5
	1983	34.9[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes)

[3] Provisional.

Table 2.24
Deaths Due to Accidents by Type of Accident, Michigan Residents, 1983

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
236	Motor Vehicle Accidents Involving Collision with Another Motor Vehicle	544	18.5
252	Fracture, Cause Unspecified, and Other and Unspecified Falls	336	11.4
239	Motor Vehicle Accidents Not Involving Collision on Highway	300	10.2
237	Motor Vehicle Accidents Involving Collision with Pedestrian	264	9.0
262	All Other Accidents, and Late Effects of Accidental Injury	2[illegible]8	7.7
238	Motor Vehicle Accidents Involving Collision with Other Vehicle or Object	192	6.5
253	Accidents Caused by Fires and Flames	186	6.3
255	Accidental Drowning and Submersion	172	5.8
250	Fall From One Level to Another	129	4.4
256	Inhalation and Ingestion of Food or Other Object Causing Obstruction of Respiratory Tract or Suffocation	117	4.0
246	Accidental Poisoning by Drugs, Medicaments, and Biologicals	75	2.5
240	Motor Vehicle Traffic Accidents of Unspecified Nature	62	2.1
248	Accidental Poisoning by Gases and Vapors	58	2.0
249	Misadventures During Medical Care, Abnormal Reactions, and Late Complications	52	1.8
243	Water Transport Accidents	48	1.6
241	Motor Vehicle Nontraffic Accidents	34	1.2
258	Accidents Caused by All Other and Unspecified Firearms	31	1.1
235	Motor Vehicle Accidents Involving Collision with Train	23	0.8
244	Air and Space Transport Accidents	22	0.7
261	Accidents Caused by Electric Current	20	0.7
251	Fall on Same Level	10	0.3
234	Railway Accidents	8	0.3
247	Accidental Poisoning by Other Solid or Liquid Substances	8	0.3
263	Drugs, Medicaments, and Biological Substances Causing Adverse Effects in Therapeutic Use	8	0.3
259	Accidents Caused by Explosive Material	7	0.2
260	Accidents Caused by Hot Substance or Object, Caustic or Corrosive Material, Steam, and Exposure to Radiation	6	0.2
242	Other Road Vehicle Accidents	5	0.2
254	Lightning	1	0.0
257	Accidents Caused by Handguns	1	0.0
	Total	2,947	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the _International Classification of Diseases_, WHO.

Table 2.25
Deaths Due to Accidents by Age at Death and Type of Accident, Michigan Residents, 1983

TYPE OF ACCIDENT	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	2,947	275	635	764	495	778
Motor Vehicle Accidents	1,419	118	472	452	202	175
Accidental Falls	475	11	9	30	76	349
Accidents Caused by Fire and Flames	186	38	21	44	34	49
Accidental Drownings	172	50	43	52	18	9
Accidental Poisonings	141	2	23	65	30	21
Choking on Food or Other Object	117	8	2	12	31	64
Accidents Caused by Handguns and Other Firearms	32	6	14	8	4	-
Air and Space Transport Accidents	22	1	3	10	7	1
Misadventures During Medical Care, Abnormal Reactions, and Late Complications	52	1	3	3	8	37
Water Transport Accidents	48	1	6	20	17	4
All Other Accidents	283	39	39	68	68	69

Deaths from motor vehicle accidents accounted for 48.2 percent of all accidental deaths in 1983. This proportion of accident deaths varied by age group, from a low of 22.5 percent of accident deaths for persons 65 years of age or older to 74.3 percent for persons 15-24 years of age (Table 2.25). Among children under 15 years the most frequent causes of accidental death were motor vehicle accidents, drownings, and fires, resulting in 118, 50, and 38 deaths respectively in 1983. Motor vehicle accidents and drownings were the leading causes of accidental death among persons 15-24 years of age. Motor vehicle accidents and poisonings were the leading causes of accidental death among persons 25-44 years of age, resulting in 74.3 percent and 8.5 percent, respectively, of all accidental deaths in this age group. Accidental falls, which caused 16.1 percent of all accidental deaths, were the cause of 44.9 percent of the accidental deaths among persons 65 years of age or older.

Table 2.26 displays the distribution of motor vehicle accident deaths by the age of the deceased person and the type of involvement of the deceased in the accident. Of the 1,419 persons killed in motor vehicle accidents in 1983, 583 (41.1 percent) were driving motor vehicles other than motorcycles at the time of the fatal accident. There were 273 deaths of passengers in motor vehicles other than motorcycles, while 279 pedestrians were killed in motor vehicle accidents. Motorcycle accidents resulted in the deaths of 83 motorcyclists and 16 motorcycle passengers. It should be noted that for 144 deaths (10.1 percent of the total) the type of involvement of the deceased in the accident was not stated.

The type of involvement of the deceased in the accident varied by age. The majority of children under age 15 killed in motor vehicle accidents were either pedestrians (46.6 percent) or passengers (33.1 percent). Nearly two thirds of the persons 15-24 years of age who died in motor vehicle accidents in 1983 were either drivers (41.5 percent) or passengers (24.4 percent) of motor vehicles other than motorcycles. Among persons 25-44 years and 45-64 years of age 50.0 percent and 48.5 percent respectively were driving motor vehicles other than motorcycles at the time of the accident. Pedestrians accounted for 29.1 percent of all motor vehicle accident deaths among persons 65 years of age or older, compared to 19.7 percent for persons of all ages.

Of the total 2,947 accidental deaths, 1,546 or 48.5 percent of the accidents occurred on streets and highways (Table 2.27). The second most common place of occurrence was the home with 661 deaths (22.4 percent). There were 46 deaths attributed to accidents at industrial places and premises, 38 in public buildings, and 39 on farms. Note that the place of injury was not specified for 14.3 percent of the accidental deaths.

Table 2.26
Deaths from Motor Vehicle Accidents by Person Injured and Age at Death, Michigan Residents, 1983

PERSON INJURED	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	1,419	118	472	452	202	175
Driver of Motor Vehicle Other Than Motorcycle	583	-	196	226	98	63
Passenger in Motor Vehicle Other Than Motorcycle	273	39	115	55	35	29
Motorcyclist	83	3	33	44	3	-
Passenger on Motorcycle	16	1	9	5	1	-
Pedal Cyclist	41	19	9	5	5	3
Pedestrian	279	55	68	69	36	51
Unspecified Person . .	144	1	42	48	24	29

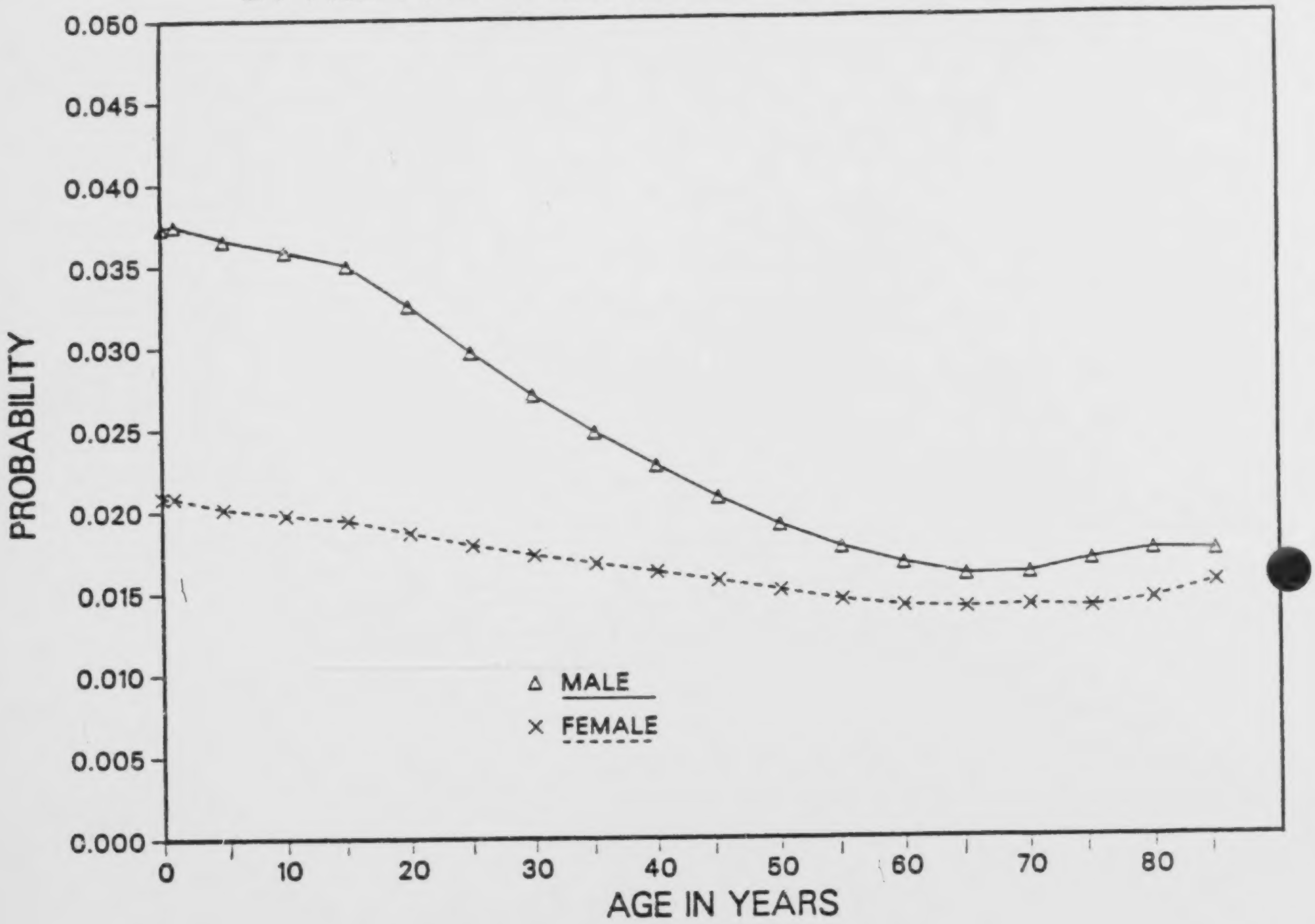
Table 2.27
Deaths Due to Accidents by Place of Injury, Michigan Residents, 1983

PLACE	NUMBER OF DEATHS
Street and Highway	1,429
Home	661
Place for Recreation and Sport	114
Resident Institution	53
Industrial Place and Premises	46
Farm	39
Public Building	38
Mine and Quarry	5
Other Specified Places	140
Place Not Specified	422
Total	2,947

It can be seen from Figure 2.25 that the probability of eventually having an accidental death is greater for younger persons. According to Michigan mortality data from the years 1981 through 1983 the probability of eventually dying from accidental causes is 0.037 for males and 0.021 for females at birth. Probabilities for males decline slowly through childhood and the teenage years, fall rapidly between ages 15 and 40, and thereafter decline more slowly until the lowest probability of 0.016 is reached at age 70. For females the probabilities decline more moderately and steadily. Probabilities for males remain much higher than for females until about age 45 and slightly higher after that age.

FIGURE 2.25

PROBABILITY OF EVENTUALLY DYING FROM ACCIDENTAL CAUSES BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS

The fifth leading cause of death in 1983 was chronic obstructive pulmonary diseases and allied conditions. This group of diseases caused 2,466 Michigan resident deaths. There were 12 percent more deaths due to this cause in 1983 than in 1982 (when there were 2,205 deaths). Of the 2,466 deaths, 1,582 (64.2 percent) were to males (Table 2.28).

The median age at death of persons who died from these respiratory diseases was 73 years, slightly higher than the median of 72 years for deaths from all causes. However, unlike deaths from all causes where the median for females was substantially higher than for males (76 years and 69 years), the median age of females who died from chronic obstructive pulmonary diseases and allied conditions was lower than that for males (71 years compared to 74 years). The median age for white persons (73 years) was four years higher than that for persons of other races (69 years).

The crude death rate for chronic obstructive pulmonary diseases and allied conditions was 26.9 per 100,000 population. The crude death rate for males was 1.9 times that for females (Table 2.29). Age-specific rates for males and females from Table 2.29 are graphically presented in Figure 2.26. The strong association between chronic obstructive pulmonary diseases and allied conditions and increasing age is clearly evident. Note also that age-specific rates for males are as high or higher than those for females in all age groups at age 35 and beyond. The relative differential between rates for males and females increases steadily with age. In the age group 85 years and over the rate for males is 4.9 times that for females. The age-adjusted death rate for this group of diseases was 2.3 times as high for males as it was for females (27.7 and 12.0 deaths per 100,000 population respectively).

Age-specific rates for white and other than white persons are displayed in Figure 2.27. Rates were higher for other than white persons prior to age 65, after which they were higher for white persons. The age-adjusted death rate from these respiratory diseases for white persons was 9.0 percent above that for other than white persons.

Table 2.30 presents age-adjusted death rates by sex and race for the period 1970-1983 for deaths from this group of respiratory diseases. The age-adjusted death rates for males remained fairly constant over the decade, while for females the rate in 1983 was 114 percent higher than in 1970. The increase in age-adjusted rates for females was mainly due to an even larger increase (126 percent) in rates for white females, while the rate for other than white females was 43.3 percent higher in 1983 than in 1970. The

Table 2.28
Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	4	4	-	1	1	-	3	3	-	-	-	-
5-9	1	1	-	-	-	-	1	1	-	-	-	-
10-14	4	3	1	2	2	-	2	1	1	-	-	-
15-19	3	1	2	2	-	2	1	1	-	-	-	-
20-24	4	1	3	2	-	2	2	1	1	-	-	-
25-29	3	-	3	2	-	2	1	-	1	-	-	-
30-34	7	-	7	4	-	4	3	-	3	-	-	-
35-39	9	4	5	3	3	-	6	1	5	-	-	-
40-44	11	6	5	8	5	3	3	1	2	-	-	-
45-49	29	15	14	25	12	13	4	3	1	-	-	-
50-54	55	30	25	47	25	22	8	5	3	-	-	-
55-59	122	71	51	101	58	43	21	13	8	-	-	-
60-64	244	135	109	210	111	99	34	24	10	-	-	-
65-69	415	255	160	389	235	154	26	20	6	-	-	-
70-74	459	286	173	432	267	165	26	18	8	1	1	-
75-79	427	305	122	384	273	111	43	32	11	-	-	-
80-84	354	252	102	327	231	96	26	21	5	1	-	1
85-89	218	157	61	207	149	58	11	8	3	-	-	-
90+	97	56	41	96	55	41	1	1	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2466	1582	884	2242	1427	815	222	154	68	2	1	1
Median Age At Last Birthday	73	74	71	73	74	71	69	71	64	*	*	*

Table 2.29
Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	26.9	35.5	18.8	28.8	37.4	20.5	16.4	24.0	9.6
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.5	0.8	*	*	*	*	1.6	2.7	*
15-24 Years	0.4	*	0.6	*	*	*	*	*	*
25-34 Years	0.6	*	1.2	0.4	*	0.9	*	*	*
35-44 Years	2.0	2.0	1.9	1.3	1.8	*	6.7	*	9.7
45-54 Years	9.5	10.5	8.6	9.4	9.8	8.9	10.7	15.8	*
55-64 Years	41.5	49.7	34.2	39.8	45.9	34.3	55.0	79.8	33.5
65-74 Years	152.7	217.2	103.0	160.9	226.3	110.5	84.4	141.3	40.3
75-84 Years	277.7	536.7	126.2	278.8	540.9	127.9	266.6	500.1	108.6
85 Years and Over	355.2	801.7	164.2	368.4	830.9	171.6	186.5	446.2	*
Age-Adjusted Rate[2]	18.2	27.7	12.0	18.2	27.7	12.2	16.7	26.3	9.6

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

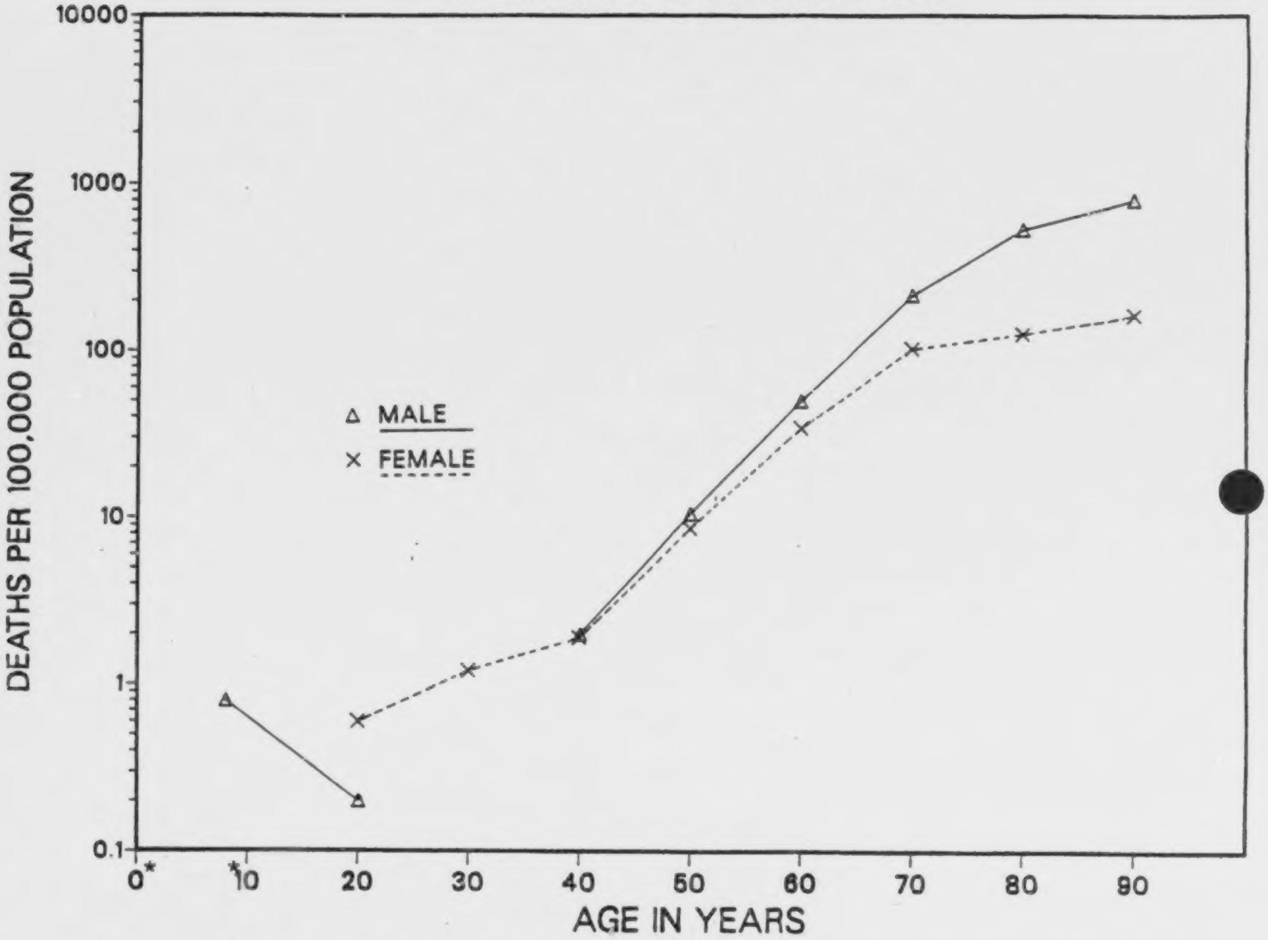
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.26

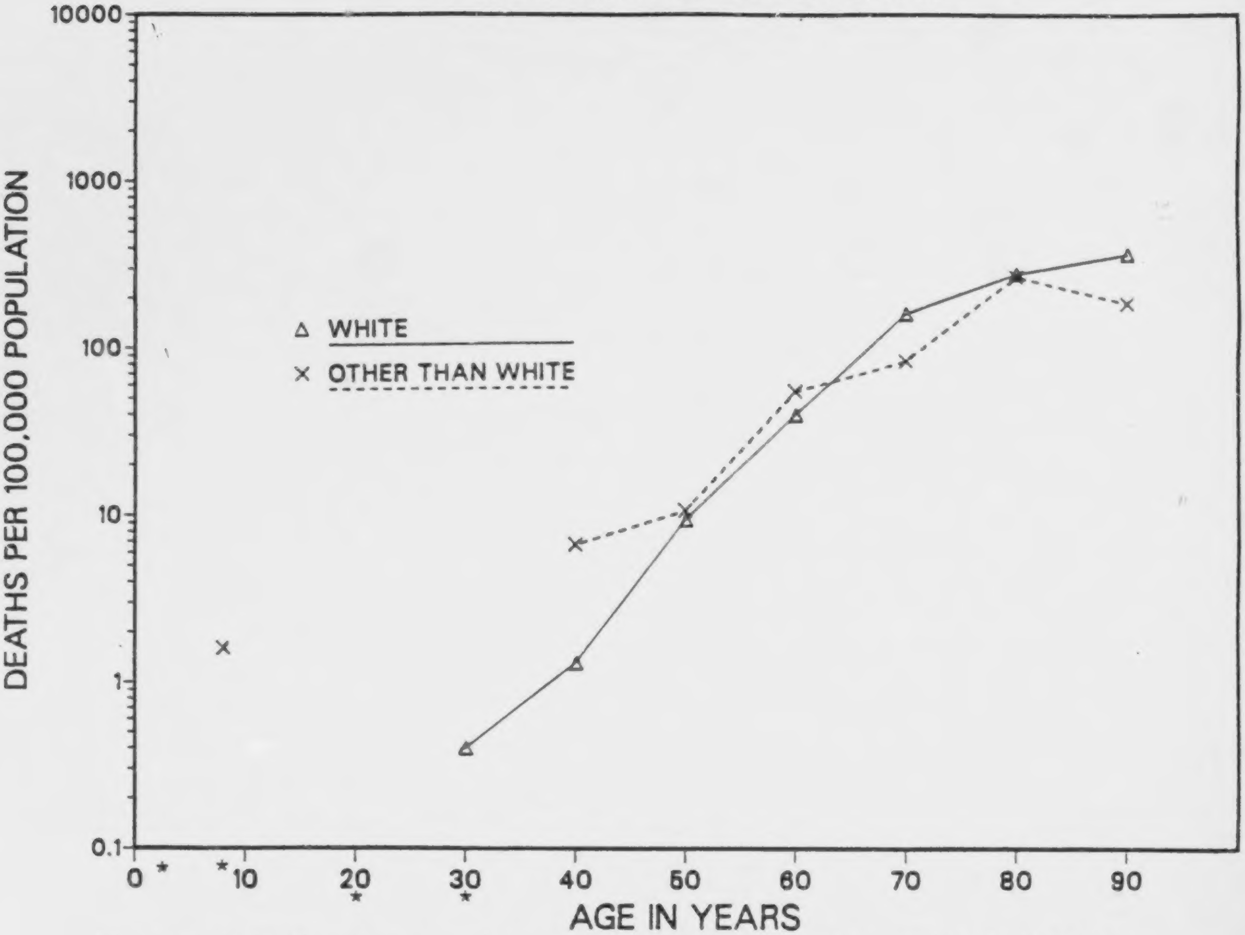
AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS BY SEX, MICHIGAN RESIDENTS, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.27
AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO
CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS
BY RACE, MICHIGAN RESIDENTS, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

Table 2.30
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions[2] by Race and Sex, Michigan[3] Residents, 1970-1983 and United States Residents, 1979-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	14.2	24.9	5.6	14.3	25.3	5.4	12.3	18.5	6.7
	1971	13.9	24.4	5.6	13.8	24.5	5.4	13.9	22.2	6.5
	1972	14.9	26.5	5.7	15.2	27.2	5.8	11.1	19.3	4.2
	1973	15.4	26.7	6.4	15.6	27.3	6.5	12.2	20.5	5.1
	1974	13.8	24.1	5.8	14.1	24.7	6.0	9.6	17.2	3.1
	1975	14.3	25.1	6.1	14.5	25.6	6.2	11.4	19.0	5.1
	1976	14.7	25.4	6.8	15.0	25.9	6.9	12.0	20.8	5.1
	1977	14.1	24.4	6.5	14.4	25.1	6.5	10.8	17.1	5.9
	1978	15.7	26.1	8.2	15.8	26.3	8.4	13.9	23.7	6.3
	1979	15.2	26.1	7.4	15.5	26.6	7.5	12.7	21.6	5.8
	1980	15.7	25.5	8.9	15.9	25.7	9.1	13.2	22.4	6.0
	1981	16.4	26.7	9.3	16.6	27.1	9.4	13.9	22.5	7.6
	1982	16.3	25.8	9.8	16.4	26.0	9.9	14.5	23.4	7.9
	1983	18.2	27.7	12.0	18.2	27.7	12.2	16.7	26.3	9.6
U.S.	1979	14.6	24.3	7.7	14.9	25.0	8.0	10.5	17.4	5.3
	1980	15.9	26.1	8.9	16.3	26.7	9.2	11.5	19.2	5.8
	1981	16.3	26.2	9.5	16.7	26.8	9.8	11.7	19.6	5.9
	1982	16.2	25.5	9.8	16.6	26.2	10.0	11.7	18.7	6.7
	1983	17.6[4]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Categories used for 1970-1978 are 8th Revision ICDA codes 490-493 (bronchitis, emphysema, and asthma) and *519.3 (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema). For years since 1979 9th Revision ICD codes 490-496 are used. No single comparability ratio was developed for the 9th Revision category and the most nearly comparable 8th Revision categories. However, for the combined categories of bronchitis, emphysema, and asthma the provisional comparability ratio is 1.0002, and that for the remaining titles (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema under the 8th Revision and other chronic obstructive pulmonary diseases and allied conditions under the 9th Revision) is 1.0054. Thus, the comparability between the composite categories is quite good. The composite category was not used for ranking causes of death under the 8th Revision and thus appeared in 1979 for the first time among the 10 leading causes of death.

[3] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[4] Provisional.

age-adjusted death rate for the total population of Michigan from chronic obstructive pulmonary diseases and allied conditions was 18.2 in 1983. This approximates the United States provisional age-adjusted rate of 17.6 (see Technical Notes).

Of the 2,466 Michigan resident deaths due to chronic obstructive pulmonary diseases and allied conditions, 1,651 (67.0 percent) were classified as chronic airways obstruction, not elsewhere classified. There were 537 deaths in 1983 due to emphysema, 115 due to bronchitis, and 126 due to asthma (Table 2.31).

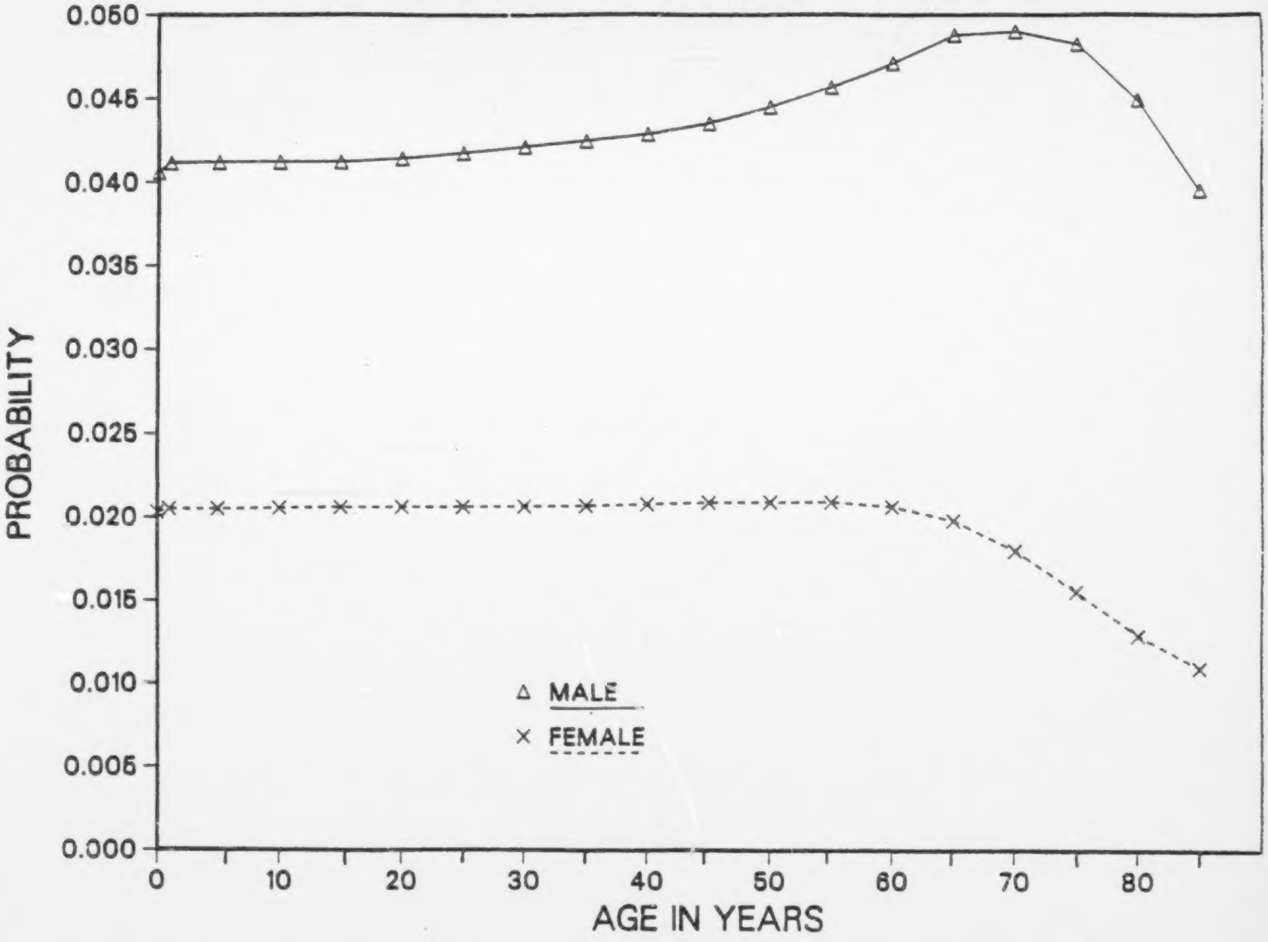
Based on mortality data from 1981-1983, the probability of eventual death due to chronic obstructive pulmonary diseases and allied conditions is 0.041 for males and 0.020 for females at birth. The probability for males increases steadily to a peak of 0.049 at age 65 and then declines in the last few age groups. The probability for females remains stable from birth through age 60 and then declines in the oldest age groups (Figure 2.28). By age 85 the probability for females declines to 0.011.

Table 2.31
Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Specific Cause, Michigan Residents, 1983

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
174	Chronic Airways Obstruction, not elsewhere classified	1,651	67.0
171	Emphysema.	537	21.8
172	Asthma	126	5.1
170	Chronic Bronchitis	115	4.7
173	Bronchiectasis and Extrinsic Allergic Alveolitis . . .	20	0.8
169	Bronchitis, not Specified as Acute or Chronic.	17	0.7
	Total.	2,466	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the *International Classification of Diseases*, WHO.

FIGURE 2.28
PROBABILITY OF EVENTUALLY DYING FROM CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS, BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

PNEUMONIA AND INFLUENZA

One of every 36 deaths that occurred to Michigan residents in 1983 was due to pneumonia and influenza. There were a total of 2,102 such deaths of which 1,067 (50.8 percent) were to males.

The overall median age at death in 1983 for those dying from pneumonia and influenza was 81 years (Table 2.32). This is well above the median age of 72 years for all deaths. The median ages at death for white persons were significantly higher than those for other than white persons. The median age for white males (79) was 11 years greater than that for other than white males (68), while for white females the median of 85 years exceeded by 19 years that for other than white females.

The overall crude death rate for pneumonia and influenza deaths in 1983 was 23.0, compared to a rate of 18.4 in 1982. The crude rate of 23.9 for males was 8.6 percent higher than the rate of 22.0 for females. On an age-adjusted basis, this differential increased significantly. The age-adjusted rate for males exceeded that for females by 88.4 percent (Table 2.33).

The age-specific death rates for males and females given in Table 2.33 are graphically displayed in Figure 2.29. Pneumonia and influenza death rates increased rapidly beyond age 54 with rates for males significantly higher than for females.

The crude rates given in Table 2.33 indicate that a greater proportion of the white population died of pneumonia and influenza in 1983 than was the case for the other than white population. On an age-adjusted basis, however, the rate for the other than white group was 59.5 percent above that for the white group. Age-specific data indicate that the rates for the other than white population were higher from birth to age 85. Among persons 85 years or over, the pneumonia and influenza death rate was higher for white persons (Figure 2.30).

Pneumonia and influenza death rates have declined markedly since 1900 both nationally and in Michigan (Figure 2.31). The annual rate was quite erratic from 1900 through 1940 or 1945. Since that time the rate has been fairly stable in terms of year to year variation while the general trend has remained downward. Michigan's rate of death due to this cause has been below the national rate almost without exception throughout this century. In 1900, the rate in Michigan was 120.3 while the national statistic was 202.1. The peak year for both was 1918 when the rates for the United States and Michigan were 588.5 and 399.8, respectively. In 1979 century low rates of 15.9 for

Table 2.32
Deaths Due to Pneumonia and Influenza by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	14	12	2	8	7	1	6	5	1	-	-	-
1-4	4	1	3	3	1	2	1	-	1	-	-	-
5-9	3	2	1	2	1	1	1	1	-	-	-	-
10-14	1	-	1	1	-	1	-	-	-	-	-	-
15-19	3	2	1	2	1	1	1	1	-	-	-	-
20-24	6	6	-	4	4	-	2	2	-	-	-	-
25-29	7	4	3	3	1	2	4	3	1	-	-	-
30-34	12	7	5	7	4	3	5	3	2	-	-	-
35-39	19	13	6	12	6	6	7	7	-	-	-	-
40-44	27	14	13	17	9	8	10	5	5	-	-	-
45-49	34	19	15	27	14	13	7	5	2	-	-	-
50-54	37	25	12	25	17	8	12	8	4	-	-	-
55-59	75	48	27	55	35	20	20	13	7	-	-	-
60-64	95	61	34	74	47	27	21	14	7	-	-	-
65-69	153	100	53	127	81	46	26	19	7	-	-	-
70-74	201	128	73	173	112	61	28	16	12	-	-	-
75-79	272	147	125	236	125	111	36	22	14	-	-	-
80-84	365	208	157	334	187	147	31	21	10	-	-	-
85-89	405	156	249	377	147	230	28	9	19	-	-	-
90+	369	114	255	343	104	239	25	10	15	1	-	1
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2102	1067	1035	1830	903	927	271	164	107	1	-	1
Median Age At Last Birthday	81	78	84	82	79	85	71	68	76	*	*	*

Table 2.33
Pneumonia and Influenza Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	23.0	23.9	22.0	23.5	23.7	23.3	19.9	25.5	15.0
Under 1 Year	10.2	17.2	*	7.1	12.2	*	24.1	40.0	*
1-14 Years	0.4	*	0.6	0.4	*	*	*	*	*
15-24 Years	0.5	0.9	*	0.4	0.6	*	*	*	*
25-34 Years	1.2	1.4	1.0	0.7	0.7	0.7	3.6	5.3	*
35-44 Years	4.5	5.4	3.7	3.3	3.5	3.2	12.6	19.2	6.9
45-54 Years	8.1	10.3	6.0	6.8	8.2	5.4	16.9	25.7	9.7
55-64 Years	19.3	26.3	13.0	16.5	22.3	11.4	41.0	58.3	26.1
65-74 Years	61.8	91.5	39.0	58.7	86.8	37.1	87.6	130.2	54.7
75-84 Years	226.5	342.1	158.9	223.5	334.8	159.4	255.2	405.8	153.3
85 Years and Over	872.8	1016.3	811.5	876.7	1022.3	814.7	823.6	942.0	769.6
Age-Adjusted Rate[2]	13.0	17.9	9.5	12.1	16.5	9.1	19.3	28.3	12.2

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

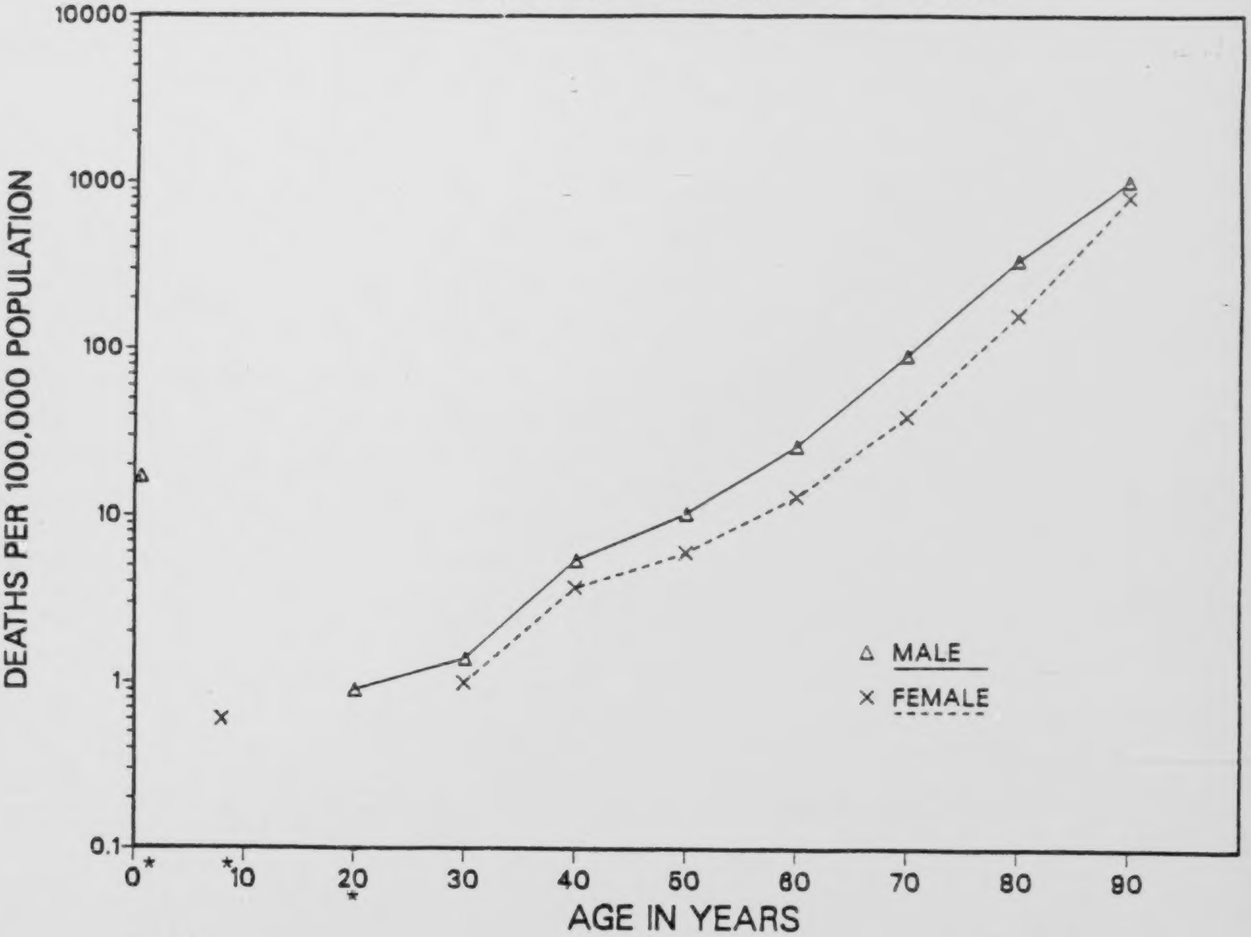
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.29

AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1983



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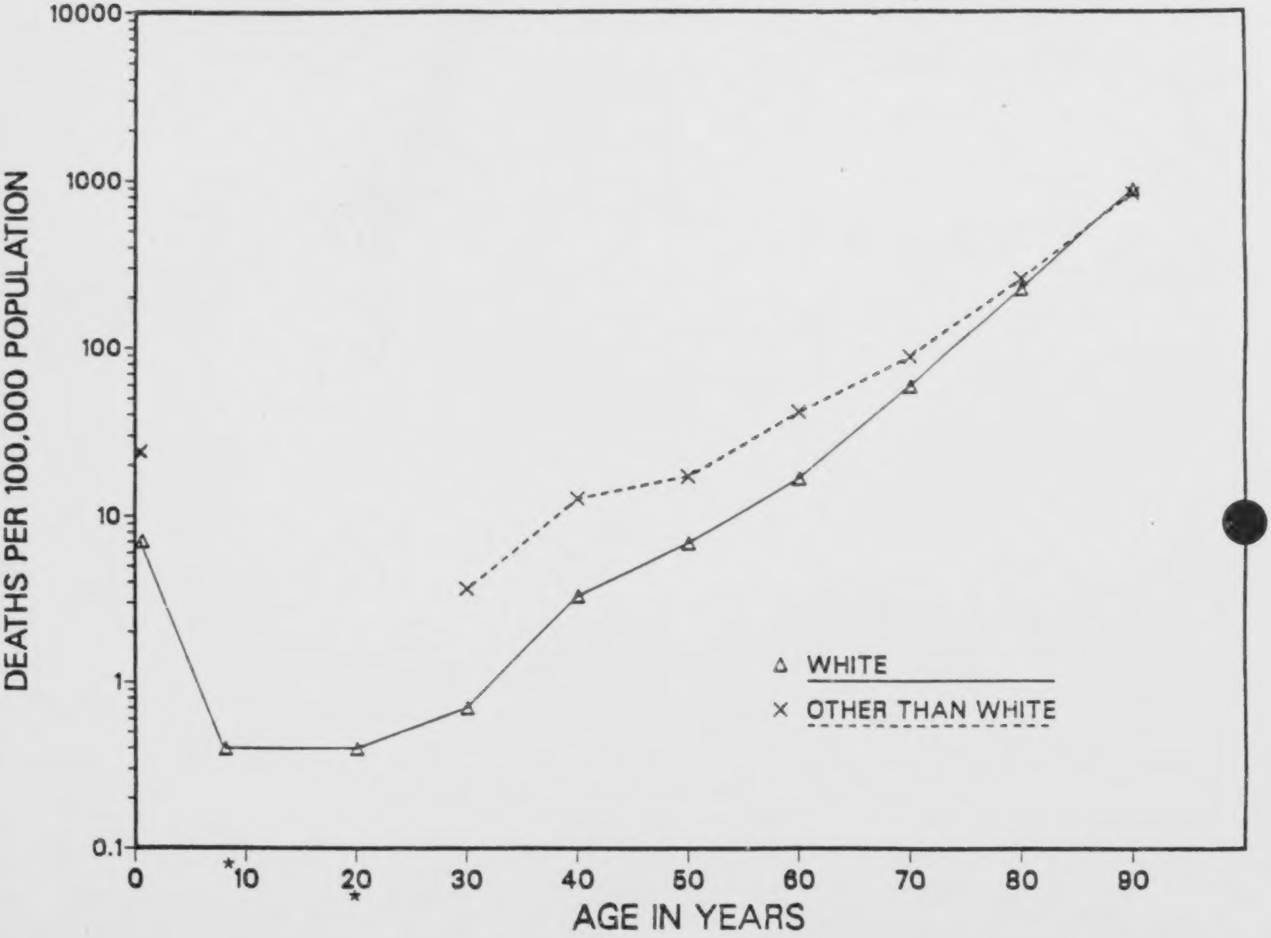
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.30

AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1983



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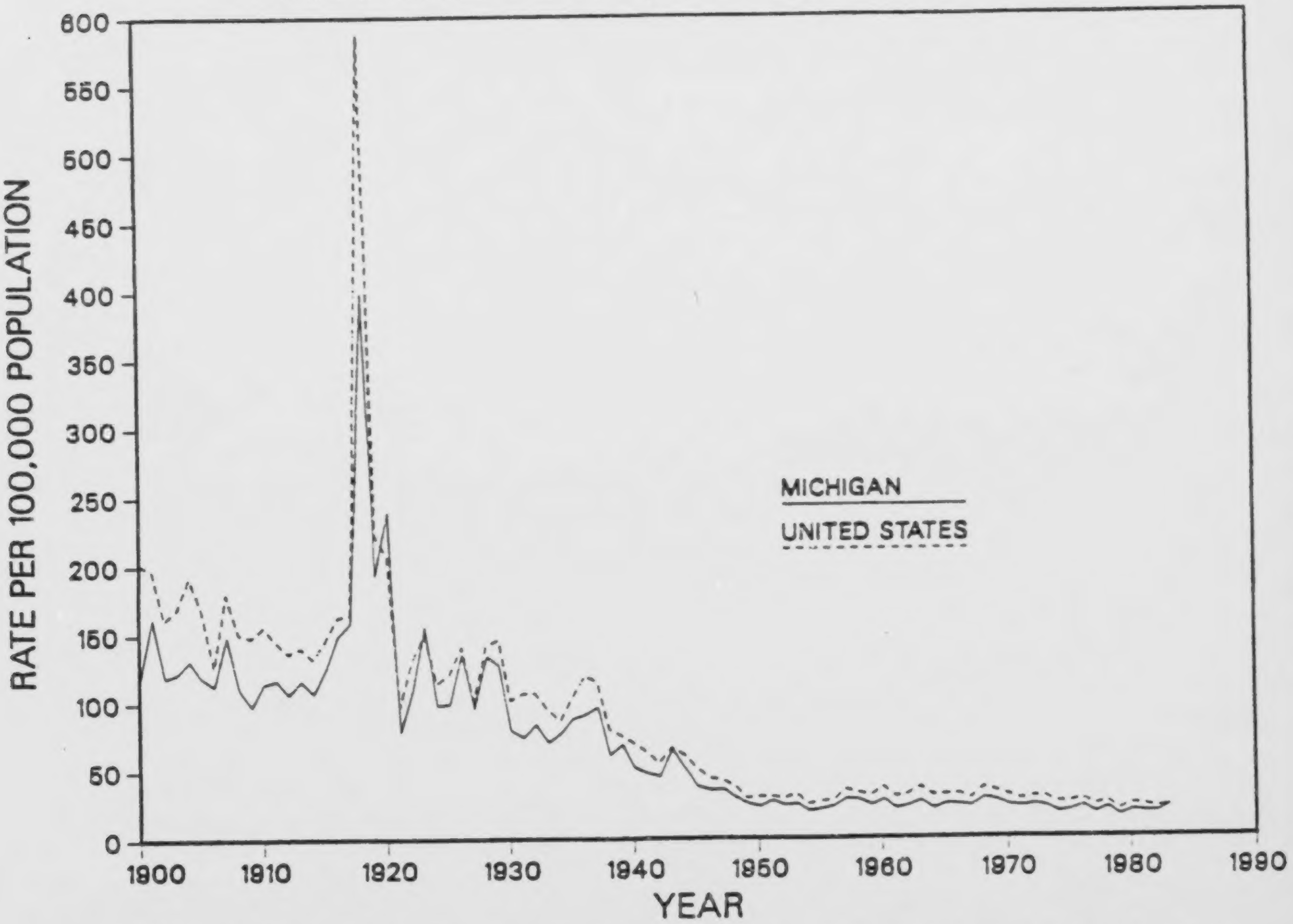
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.31

PNEUMONIA AND INFLUENZA DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1983[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Pneumonia and influenza death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Michigan and 20.5 for the nation were recorded. Michigan's rate of 23.0 in 1983 was just above the provisional rate of 22.9 for the United States. The last time the rate in Michigan was above that for the country was in 1923.

Michigan's age-adjusted death rate for pneumonia and influenza has been below that for the nation every year since 1970 (Table 2.34). Between 1970 and 1983 the age-adjusted rate for Michigan declined by 32.3 percent. Rates for other than white persons declined more rapidly than rates for white persons. The decline was most dramatic for other than white females for whom the age-adjusted rate dropped from 30.8 in 1970 to 12.2 in 1983, a decline of 60.4 percent. The declines in rates for other than white males and females while more pronounced in Michigan were mirrored by strong declines in the rates for the United States. An increase in rate from 1982 to 1983 was evident across all categories.

The majority of deaths due to pneumonia and influenza were not attributed to a specific organism. Pneumonia due to other and unspecified organisms (1,570) accounted for 74.7 percent of all Michigan pneumonia and influenza deaths in 1983 (Table 2.35). Another 11.5 percent of the deaths were due to bronchopneumonia, organism unspecified, and 8.4 percent were due to pneumococcal and other bacterial pneumonia. The three most frequent categories of pneumonia and influenza deaths together accounted for 94.6 percent of all such deaths. Influenza was the direct cause of 4.5 percent of the pneumonia and influenza deaths in 1983, compared to 2.1 percent in 1982.

The likelihood of eventual death being caused by pneumonia and influenza is between 0.029 and 0.030 for females and between 0.027 and 0.028 for males from birth to age 50. The calculated probabilities for each sex increase after this age, with probabilities for males increasing more rapidly than those for females. Based on the Michigan mortality experience of 1981-1983 by age 85 the chances of eventually dying from pneumonia and influenza are 0.051 for males and 0.044 for females (Figure 2.32).

Table 2.34
Age-Adjusted Pneumonia and Influenza Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	19.2	24.7	14.6	16.7	21.8	12.5	38.8	47.9	30.8
	1971	17.7	23.9	12.7	15.4	20.6	11.3	36.0	50.7	23.1
	1972	18.7	25.7	12.9	16.8	23.1	11.8	33.1	47.3	20.7
	1973	17.0	21.9	13.2	14.9	19.4	11.5	34.2	43.3	26.5
	1974	13.3	17.7	10.0	12.0	15.7	9.5	22.9	34.0	13.7
	1975	14.0	18.6	10.6	13.0	17.1	10.0	21.8	29.6	15.1
	1976	15.7	20.8	12.0	14.8	19.5	11.5	22.2	30.5	15.4
	1977	12.2	17.6	8.2	11.4	16.4	7.8	17.8	26.1	11.0
	1978	14.1	18.1	11.2	13.7	17.6	11.0	16.2	21.1	12.3
	1979	9.6	13.3	7.1	8.9	12.3	6.7	14.4	19.9	9.8
	1980	11.7	16.1	8.6	10.8	14.5	8.2	18.8	28.4	11.2
	1981	10.8	15.1	7.9	9.8	13.6	7.4	18.1	26.6	11.4
	1982	10.8	15.1	7.9	10.1	14.2	7.4	15.3	21.3	10.8
	1983	13.0	17.9	9.5	12.1	16.5	9.1	19.3	28.3	12.2
U.S.	1970	22.1	28.8	16.7	19.8	26.0	15.0	38.1	50.1	27.9
	1971	19.2	25.1	14.6	17.5	22.8	13.4	31.6	42.2	22.6
	1972	20.7	27.5	15.5	19.0	25.3	14.4	32.4	44.3	22.6
	1973	19.9	26.4	15.0	18.3	24.4	13.9	31.0	42.0	22.2
	1974	16.8	22.4	12.6	15.6	20.8	11.8	25.1	34.9	17.2
	1975	16.4	22.2	12.1	15.4	20.8	11.5	23.6	33.4	15.8
	1976	17.1	22.9	13.0	16.1	21.5	12.4	24.0	33.5	16.5
	1977	13.9	19.1	10.2	13.0	17.8	9.6	20.6	29.5	13.6
	1978	15.1	20.6	11.3	14.2	19.3	10.7	21.4	30.8	14.2
	1979	11.2	15.4	8.2	10.5	14.4	7.8	15.8	22.8	10.5
	1980	12.9	17.4	9.8	12.2	16.2	9.4	18.0	26.1	11.9
	1981	12.3	16.6	9.2	11.6	15.6	9.0	16.3	24.0	10.5
	1982	10.9	15.2	8.0	10.3	14.3	7.6	14.4	21.1	9.5
	1983	11.2[4]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] The introduction in 1979 of the 9th Revision of the International Classification of Diseases, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 0.9264. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

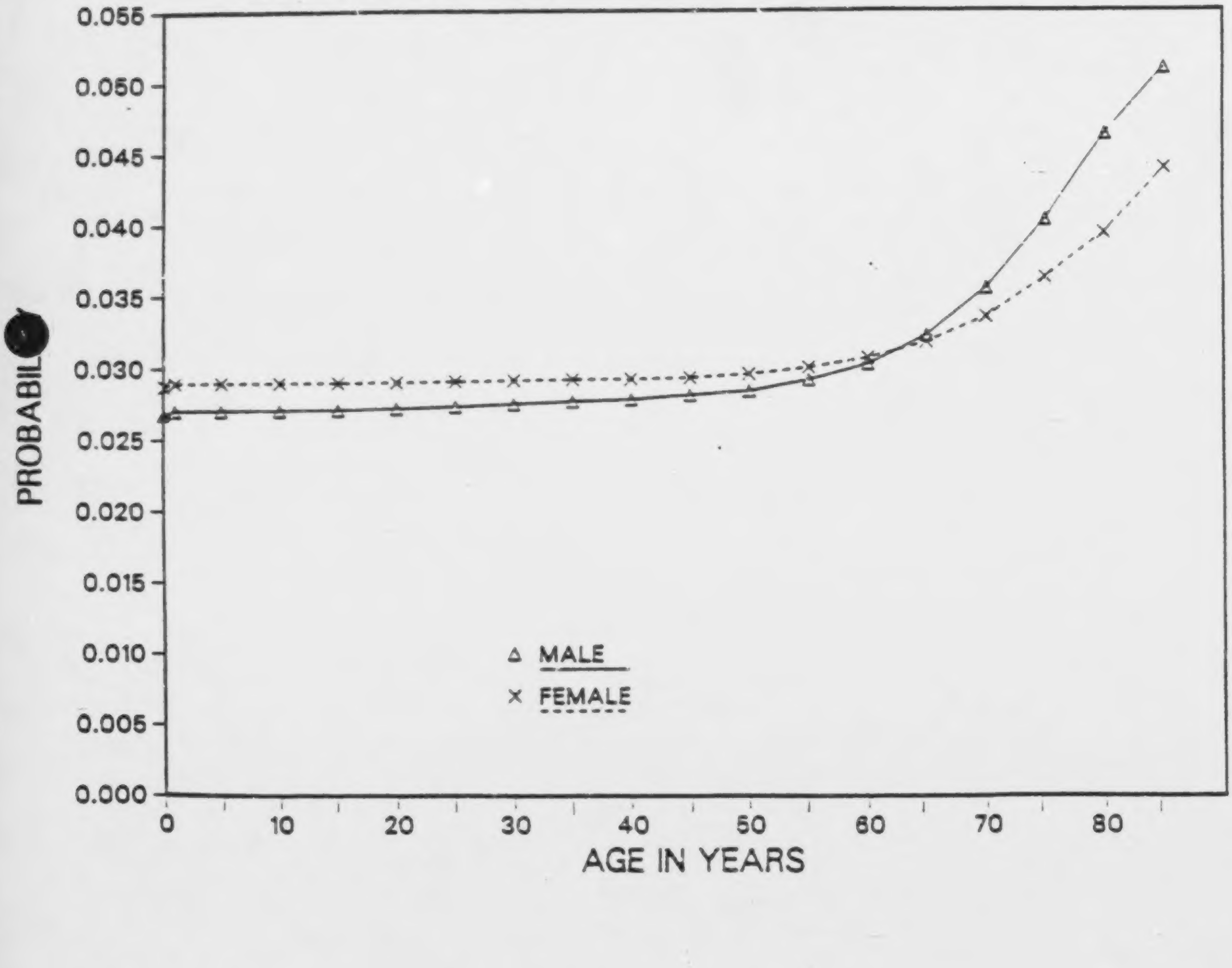
[4] Provisional.

Table 2.35
Deaths Due to Pneumonia and Influenza by Specific Cause, Michigan Residents, 1983

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
167	Pneumonia due to Other and Unspecified Organism	1,570	74.7
166	Bronchopneumonia, Organism Unspecified	241	11.5
165	Pneumococcal and Other Bacterial Pneumonia . .	177	8.4
168	Influenza	95	4.5
164	Viral Pneumonia	19	0.9
	Total	2,102	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.32
PROBABILITY OF EVENTUALLY DYING FROM PNEUMONIA AND INFLUENZA BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983



DIABETES MELLITUS

In 1983 diabetes mellitus caused the deaths of 1,470 Michigan residents. This is 123 fewer deaths than were caused by this disease in 1982. Deaths to females numbered 880 or 59.9 percent of all diabetes mellitus deaths. There were 590 diabetes mellitus deaths to males in 1983.

The median age at death for persons dying from diabetes mellitus was 72 years (Table 2.36). This is equal to the median age of all deaths. Males dying from this disease had a median age of 69 years, whereas the median for females was 75 years. The median for white males was 71 years compared to 75 years for white females. For other than white males the median was 63 years and that for other than white females 69 years.

Diabetes mellitus death rates by age, race, and sex are presented in Table 2.37. The diabetes mellitus crude death rate was 16.1 in 1983. The crude rate for females was 18.7, about 42 percent higher than the rate of 13.2 for males. When age-adjusted rates are examined, however, the rates for each sex are virtually the same. Age-specific mortality rates for males and females presented in Table 2.37 are graphically displayed in Figure 2.33. Rates for males were similar to or higher than those for females. Rates for both sexes increased steadily with advancing age.

Although the crude diabetes mellitus death rate for white persons was somewhat above that of other than white persons (16.1 compared to 15.8), the age-adjusted rate for the other than white population was 55.7 percent higher than that for the white population. The age-adjusted rate for other than white females was 57.9 percent above that of their white counterparts, while the age-adjusted rate for other than white males was 49.1 percent above that of white males. Age-specific rates for other than white persons were higher than those for white persons in all age groups below age 85 with a sufficient number of events to calculate rates (Figure 2.34). The greatest relative differential occurred for ages 45 through 64, where the rate for other than white persons was more than twice the rate for white persons.

Diabetes mellitus death rates in Michigan rose steadily from a low of 9.3 in 1900 to a peak of 29.7 in 1949 (Figure 2.35). Adoption of the 6th revision of the International Classification of Diseases in 1950 caused a significant change in Michigan diabetes death rates. From 22.6 in 1950 the rate dipped somewhat then rose to a peak of 27.0 in 1966. Since then the rate has declined 40.4 percent to 16.1 in 1983. This is the lowest rate since the 6th revision of the ICD was adopted in 1950.

The national range in diabetes mellitus death rates in

Table 2.36
Deaths Due to Diabetes Mellitus by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	2	-	2	1	-	1	1	-	1	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	7	4	3	5	2	3	2	2	-	-	-	-
25-29	17	6	11	14	5	9	3	1	2	-	-	-
30-34	24	14	10	20	12	8	4	2	2	-	-	-
35-39	26	14	12	21	10	11	5	4	1	-	-	-
40-44	32	17	15	25	13	12	7	4	3	-	-	-
45-49	26	12	14	20	10	10	6	2	4	-	-	-
50-54	75	35	40	58	29	29	17	6	11	-	-	-
55-59	98	48	50	74	36	38	24	12	12	-	-	-
60-64	136	57	79	107	42	65	29	15	14	-	-	-
65-69	189	92	97	153	72	81	35	19	16	1	1	-
70-74	185	83	102	165	77	88	20	6	14	-	-	-
75-79	212	82	130	188	74	114	24	8	16	-	-	-
80-84	234	71	163	212	67	145	22	4	18	-	-	-
85-89	117	33	84	108	32	76	9	1	8	-	-	-
90+	90	22	68	84	21	63	6	1	5	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1470	590	880	1255	502	753	214	87	127	1	1	-
Median Age At Last Birthday	72	69	75	73	71	75	66	63	69	*	*	*

Table 2.37
Diabetes Mellitus Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	16.1	13.2	18.7	16.1	13.2	18.9	15.8	13.5	17.7
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.4	*	*	0.3	*	*	*	*	*
25-34 Years	2.5	2.5	2.6	2.5	2.5	2.5	2.8	*	*
35-44 Years	5.7	6.2	5.2	5.2	5.3	5.2	8.9	12.8	*
45-54 Years	11.5	11.0	11.9	10.1	10.3	9.9	20.5	15.8	24.3
55-64 Years	26.5	25.3	27.6	23.1	21.2	24.9	53.0	58.3	48.4
65-74 Years	65.3	70.2	61.6	62.4	67.5	58.6	89.3	93.0	86.4
75-84 Years	158.6	147.4	165.1	156.9	151.3	160.0	175.2	113.2	217.2
85 Years and Over	233.4	207.0	244.7	233.5	215.9	240.9	233.1	*	294.3
Age-Adjusted Rate[2]	11.3	11.2	11.4	10.6	10.6	10.7	16.5	15.8	16.9

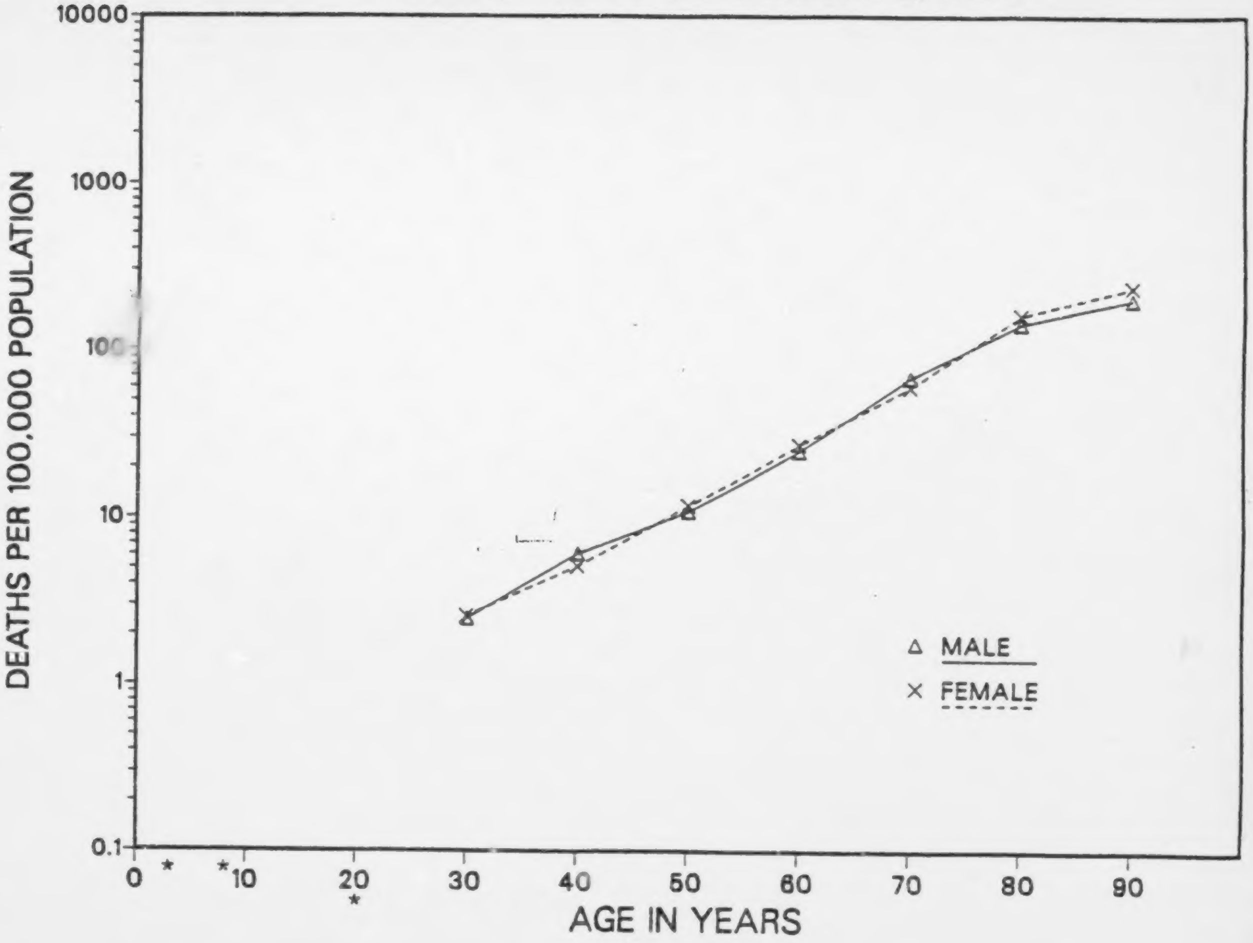
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.33
AGE-SPECIFIC DIABETES MELLITUS DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1983

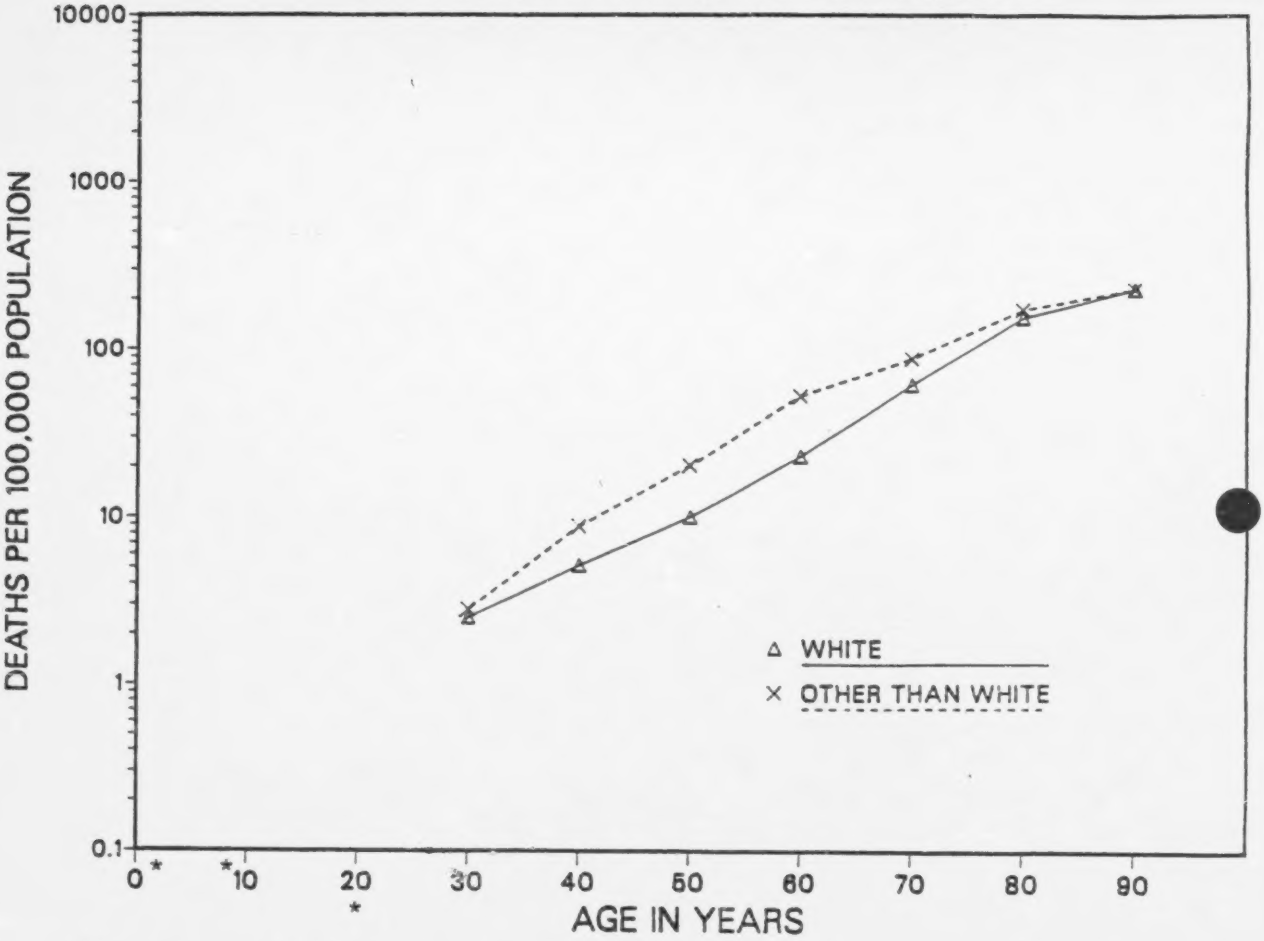


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.34

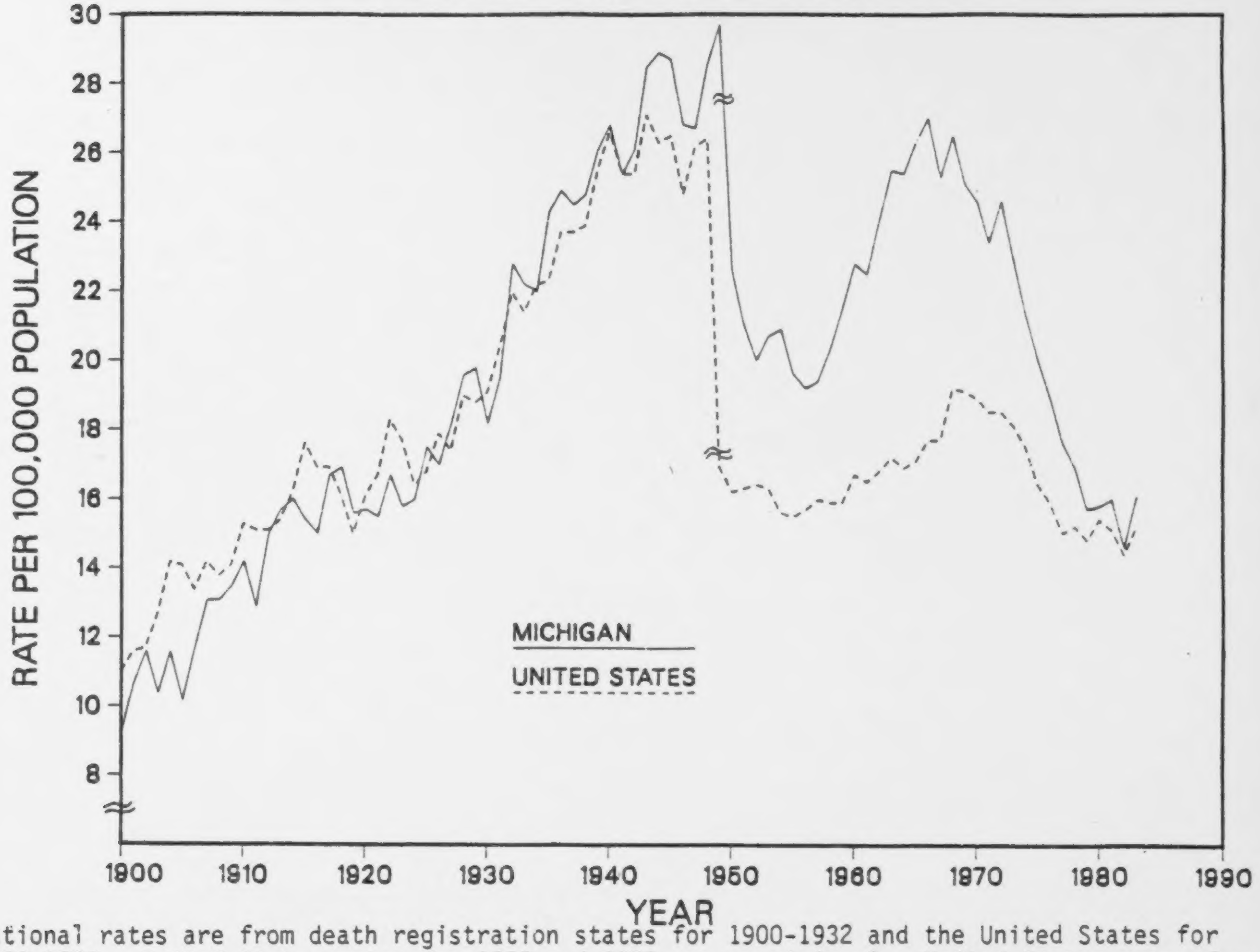
AGE-SPECIFIC DIABETES MELLITUS DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.35
DIABETES MELLITUS DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1983[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] The comparability of diabetes mellitus death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .55. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of diabetes mellitus death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

the first half of this century was from 11.0 in 1900 to 27.1 in 1943. The rate for the nation since 1949, though more stable than Michigan's rate, has tended to follow the same pattern. A peak of 19.2 was reached in 1968. Since that time the rate for the nation has declined by 20.8 percent to a provisional rate of 15.2 in 1983.

The diabetes mellitus death rate for the nation was generally above Michigan's rate for the first 25 or so years in this century. Since 1942, Michigan's rate has been above that of the nation. Through the 1960's the differential between the rates for Michigan and the United States was quite large. This has only recently started to diminish. In 1983 Michigan's rate (16.1) was 5.9 percent above the provisional rate of 15.2 for the United States.

Age-adjusted death rates for diabetes mellitus for the years 1970-1983 are presented in Table 2.38. These rates have generally declined both in Michigan and the United States for all population groups. The rate for the total population of Michigan has declined by 44.1 percent since 1970, and has fallen or remained the same each year since 1972. The rate for the U.S. declined by 30.5 percent between 1970 and 1983. In Michigan, rates for other than white persons experienced a greater relative decline than those for white persons. This decline is entirely attributable to the rates for other than white females. In 1970 the rate for other than white females was over twice that of white females. This differential was 57.9 percent in 1983.

The declines in the age-adjusted rates for other than white persons were much greater in Michigan than those observed for these groups nationally. Michigan's rates for other than white persons were substantially higher than comparable rates for the nation in 1970, but have been lower than those for the nation since 1979. Age-adjusted rates for white persons in Michigan also declined more sharply than comparable rates for the nation. However, they remained higher than those of the nation throughout the period.

In 1983 77.8 percent of all diabetes mellitus deaths were without mention of complication. Diabetes with peripheral circulatory disorders caused 77 deaths, while diabetes with renal manifestations resulted in an additional 102 deaths. There were 107 deaths in 1983 from diabetes with ketoacidosis or coma. These are deaths where a diabetic crisis was involved (Table 2.39).

At birth, the probability of eventual death due to diabetes mellitus is 0.015 for males and 0.023 for females (Figure 2.36). The probability of death from diabetes mellitus for females is relatively stable from birth to age

Table 2.38
Age-Adjusted Diabetes Mellitus Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	20.2	20.8	19.8	18.8	19.9	17.7	34.3	29.1	39.4
	1971	18.9	17.4	20.1	17.5	16.6	16.1	31.2	23.8	37.7
	1972	19.6	18.7	20.2	18.1	17.7	18.4	32.0	27.5	36.2
	1973	18.0	17.4	18.2	16.7	16.4	16.8	28.3	25.5	30.6
	1974	16.2	16.0	16.3	15.7	15.8	15.5	20.2	17.5	22.5
	1975	14.9	14.8	14.9	14.2	14.2	14.0	21.1	19.8	22.3
	1976	13.8	13.7	13.8	12.7	12.6	12.7	22.7	22.5	22.9
	1977	12.9	13.3	12.5	12.1	12.6	11.6	19.8	19.3	20.3
	1978	12.1	12.3	11.8	11.1	11.7	10.4	20.6	16.7	23.5
	1979	11.2	11.1	11.2	10.7	11.2	10.3	14.7	10.5	18.2
	1980	11.2	11.0	11.3	10.5	10.6	10.4	16.8	14.5	18.5
	1981	11.2	11.9	10.6	10.4	11.4	9.8	16.8	16.1	17.4
	1982	10.0	10.4	9.7	9.4	10.0	8.9	14.7	13.3	16.0
	1983	11.3	11.2	11.4	10.6	10.6	10.7	16.5	15.8	16.9
U.S.	1970	14.1	13.5	14.4	12.9	12.7	12.8	25.2	20.4	29.3
	1971	13.7	13.2	14.0	12.3	12.4	12.2	25.6	20.3	30.0
	1972	13.5	13.1	13.7	12.2	12.2	12.0	25.9	21.1	29.7
	1973	13.0	12.8	13.1	11.7	11.9	11.5	25.0	21.0	28.2
	1974	12.4	12.1	12.6	11.2	11.4	11.0	23.1	18.7	26.6
	1975	11.4	11.3	11.4	10.3	10.6	10.0	21.3	17.8	23.9
	1976	10.9	10.8	10.9	9.8	10.0	9.5	20.5	17.4	22.9
	1977	10.2	10.3	10.1	9.2	9.7	8.8	19.0	16.2	21.2
	1978	10.2	10.3	10.0	9.2	9.7	8.8	18.5	16.2	20.2
	1979	9.8	10.0	9.5	8.8	9.3	8.3	18.1	16.1	19.5
	1980	10.1	10.2	10.0	9.1	9.5	8.7	18.8	16.4	20.6
	1981	9.8	10.0	9.6	8.8	9.3	8.4	17.9	15.6	19.5
	1982	9.6	9.8	9.3	8.7	9.2	8.3	16.7	14.7	18.1
	1983	9.8[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

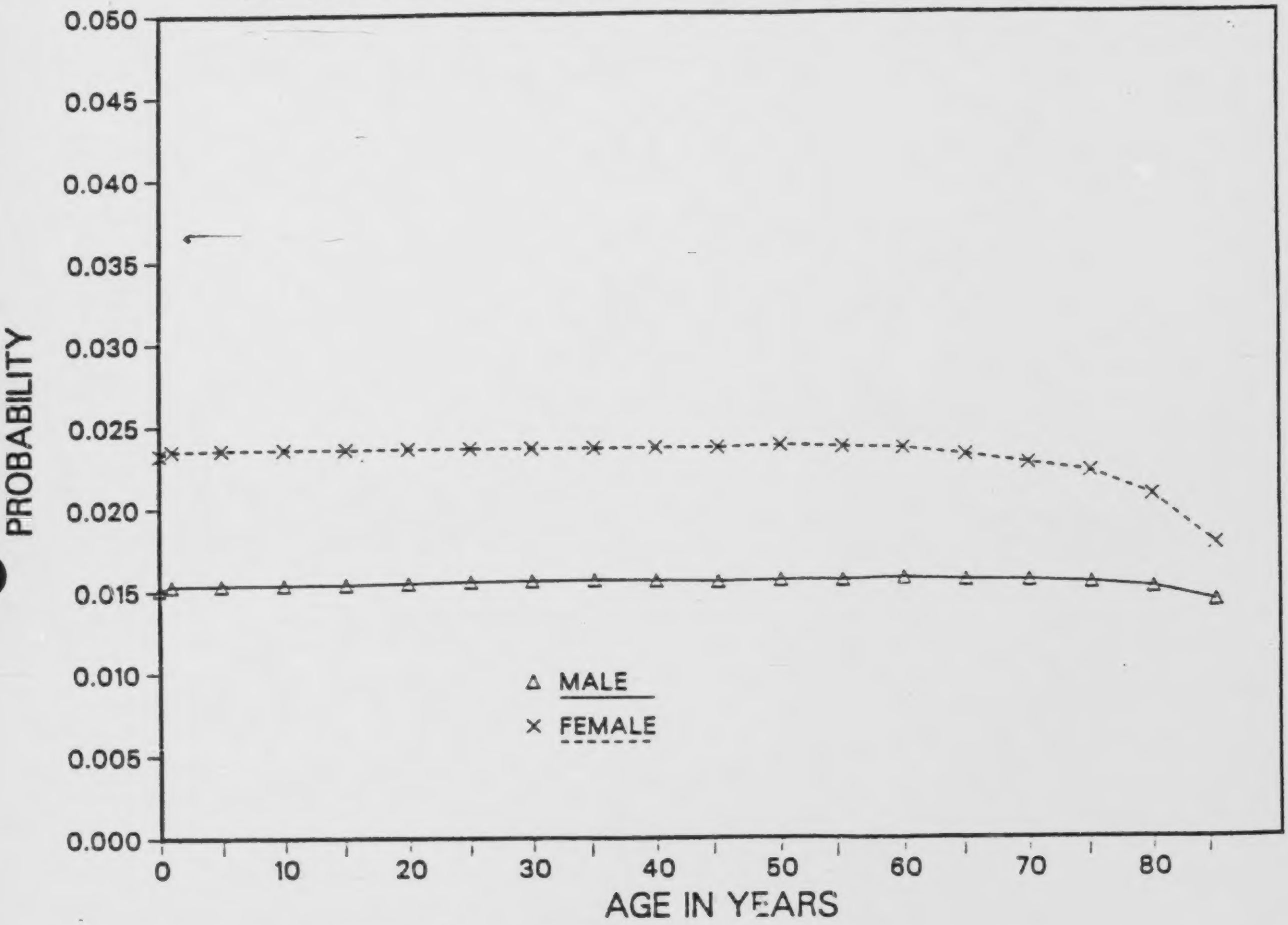
Table 2.39
Deaths Due to Diabetes Mellitus by Detailed Cause, Michigan Residents, 1983

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
250.0	Diabetes Mellitus without Mention of Complication	1,143	77.8
250.3	Diabetes with Renal Manifestations	102	6.9
250.6	Diabetes with Peripheral Circulatory Disorders .	77	5.2
250.1	Diabetes with Ketoacidosis	71	4.8
250.2	Diabetes with Coma	36	2.4
250.7	Diabetes with Other Specified Manifestations . .	27	1.8
250.5	Diabetes with Neurological Manifestations	9	0.6
250.4	Diabetes with Ophthalmic Manifestations	4	0.3
250.9	Diabetes with Unspecified Complications	1	0.1
	Total	1,470	100.0

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.36

PROBABILITY OF EVENTUALLY DYING FROM DIABETES MELLITUS BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

65 and declines after that age. Females are less likely to eventually die from this cause at ages 70 and older than when they were born. Probabilities for males are consistently below those for females, but decline very little in the older ages.

ATHEROSCLEROSIS

There were a total of 1,269 Michigan resident deaths attributed to atherosclerosis in 1983, making this cause the 8th leading cause of death in the state. Atherosclerosis is the term under the 9th Revision (adopted in 1979) for the category most nearly comparable to arteriosclerosis under the 8th Revision. Of the deaths due to this cause in 1983 63.8 percent were to females, while 46.8 percent of the deaths due to all causes were to females. Only 65 of the 1,269 deaths were to other than white persons. This is 5.1 percent of all atherosclerosis deaths, while 13.7 percent of all deaths were to other than white persons.

The majority of the atherosclerosis deaths were to persons of advanced ages. The median age of all deaths resulting from this disease was 86 years. The median age at death for males was 5 years lower than that for females, and the median for other than white persons was 7 years lower than that for white persons (Table 2.40).

Atherosclerosis resulted in 13.9 deaths per 100,000 Michigan residents in 1983, equal to the rate of 13.9 in 1982. Deaths to females from this disease were relatively more frequent than for males with crude mortality rates of 17.2 and 10.3 respectively (Table 2.41). The age-adjusted rate for males, however, was 15.5 percent higher than that for females. Age-specific atherosclerosis death rates rose sharply beyond age 54 for persons of both sexes. Rates for males were generally above those for females below age 85 (Figure 2.37).

The crude rate for deaths due to atherosclerosis for white persons was 3.2 times that for other than white persons. However, when the differing age distributions of the two groups are considered, the differential is greatly reduced. The age-adjusted rate of 6.4 for whites is, nonetheless, 1.6 times the rate of 4.1 for other than white persons (Figure 2.38).

Inspection of arteriosclerosis death rates since 1900 is far less informative than study of the historical data for other causes of death. The classification of this disease has been significantly altered several times since the inception of the ICD codes (see footnote of Figure 2.39). What can be seen in Figure 2.39 is a strong rise between 1900 and 1912. Rates in Michigan and the nation then stabilized and began declining. A coding revision in 1930 then breaks comparability with 1929 rates. The arteriosclerosis death rates from 1930 through 1948 show no clear direction. From 1950 through 1967 the rates for the nation held fairly stable while in Michigan the rates dropped and then returned to national levels. From 1968 through 1979 the death rates due to arteriosclerosis in

Table 2.40
Deaths Due to Atherosclerosis by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	3	2	1	2	2	-	1	-	1	-	-	-
50-54	7	4	3	6	3	3	1	1	-	-	-	-
55-59	20	12	8	18	11	7	2	1	1	-	-	-
60-64	26	8	18	23	6	17	3	2	1	-	-	-
65-69	46	26	20	43	24	19	3	2	1	-	-	-
70-74	88	50	38	80	49	31	8	1	7	-	-	-
75-79	183	86	97	167	78	89	16	8	8	-	-	-
80-84	199	72	127	188	66	122	11	6	5	-	-	-
85-89	323	87	236	317	86	231	6	1	5	-	-	-
90+	374	112	262	359	107	252	14	5	9	1	-	1
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1269	459	810	1203	432	771	65	27	38	1	-	1
Median Age At Last Birthday	86	82	87	86	83	87	79	79	80	*	*	*

Table 2.41
Atherosclerosis Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	13.9	10.3	17.2	15.4	11.3	19.4	4.8	4.2	5.3
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	*	*	*	*	*	*	*	*	*
25-34 Years	*	*	*	*	*	*	*	*	*
35-44 Years	*	*	*	*	*	*	*	*	*
45-54 Years	1.1	1.4	*	1.0	1.3	*	*	*	*
55-64 Years	5.2	4.8	5.6	5.2	4.6	5.8	5.0	*	*
65-74 Years	23.4	30.5	17.9	24.1	32.8	17.3	17.9	*	23.0
75-84 Years	135.8	152.2	126.2	139.2	154.5	130.4	102.8	132.1	83.0
85 Years and Over	786.0	749.0	801.8	823.2	786.1	838.9	310.8	297.5	316.9
Age-Adjusted Rate[2]	6.2	6.7	5.8	6.4	7.0	6.0	4.1	4.4	3.9

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

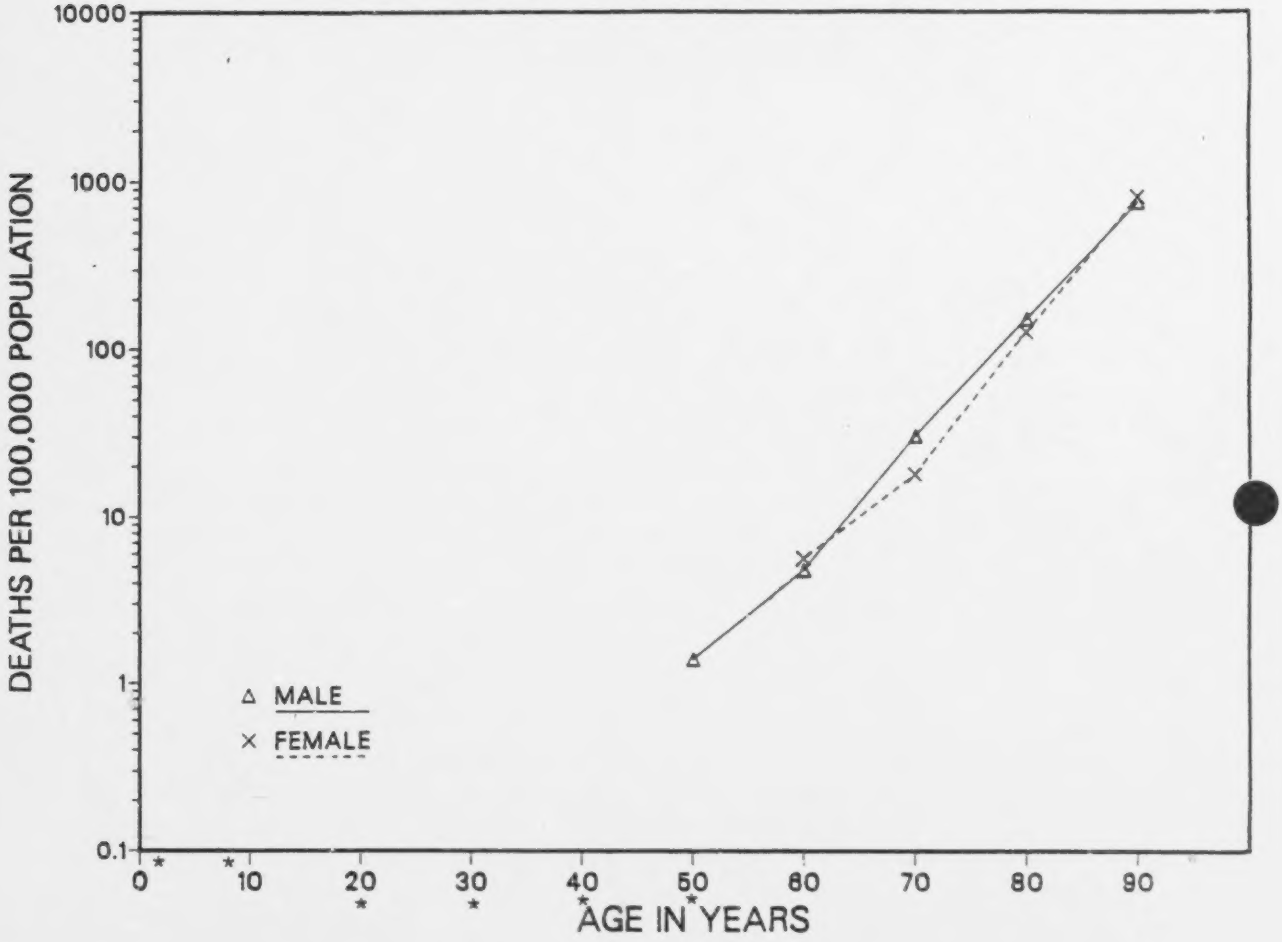
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.37

AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1983



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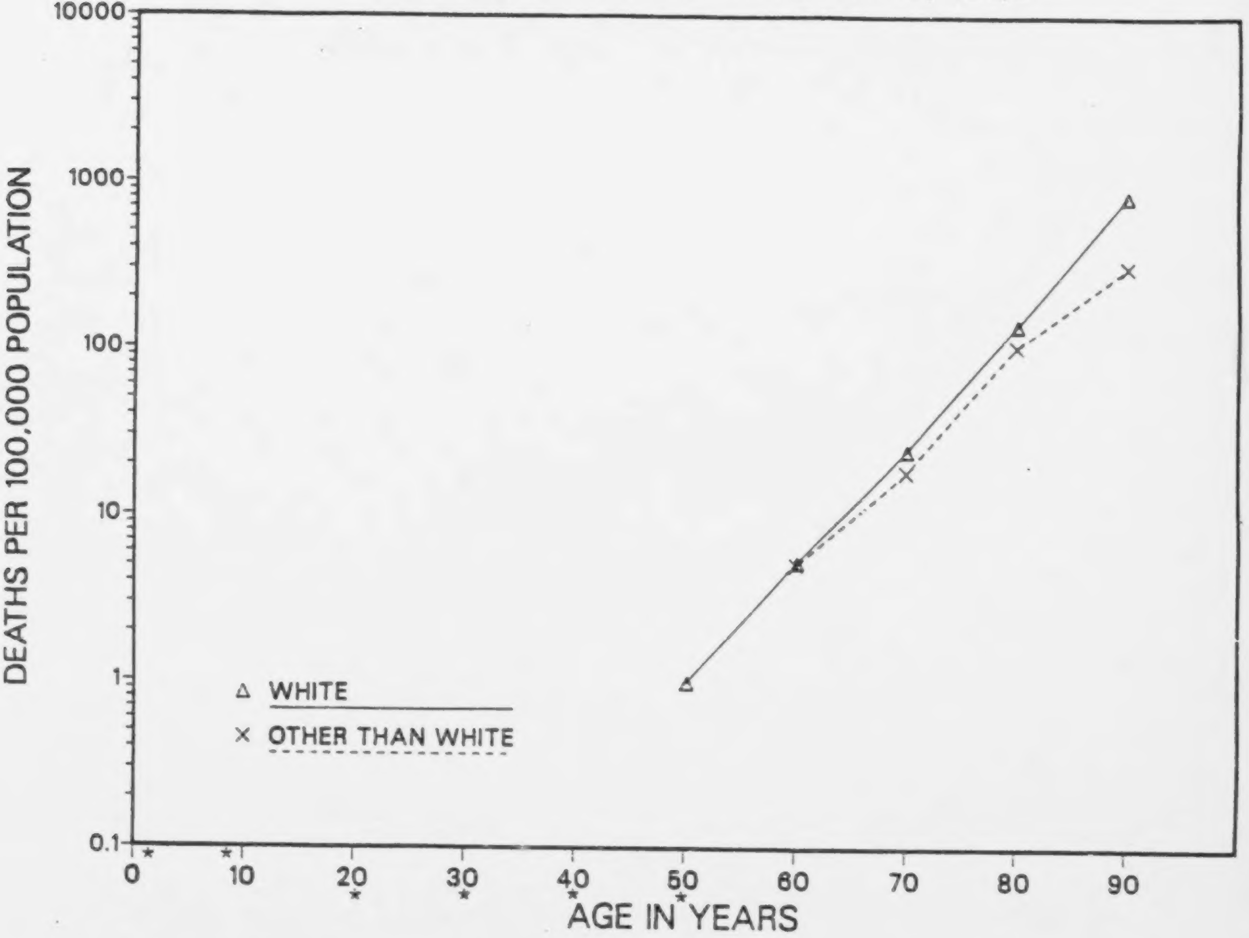
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.38

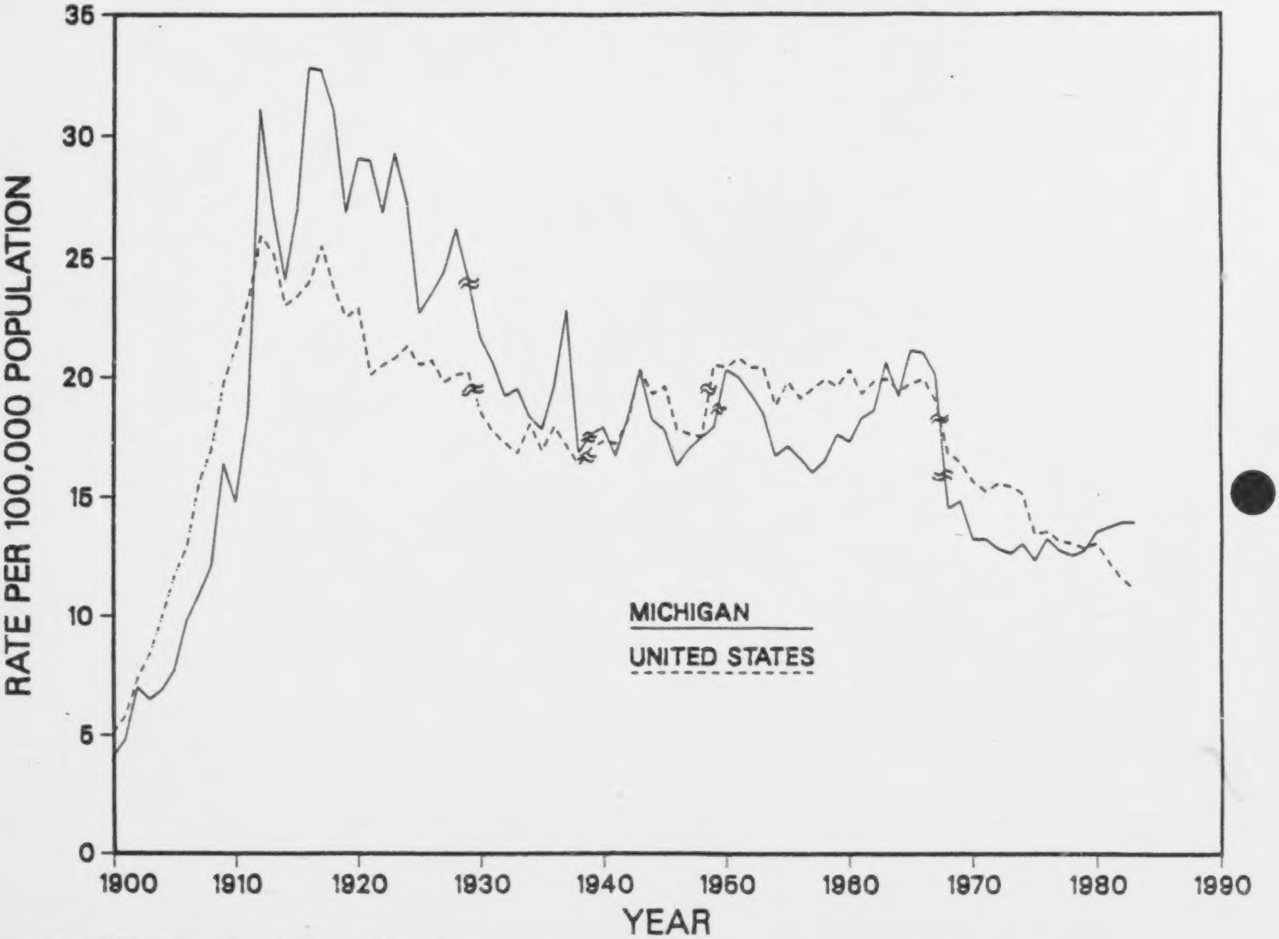
AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1983



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.39
ATHEROSCLEROSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[2] 1900-1983[3]



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[1] Prior to 1979 termed arteriosclerosis.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] Although Michigan and United States atherosclerosis death rates are comparable for any given year, changes in the International Classification of Diseases over the years have made historic comparison of these rates extremely difficult. Comparability breaks are especially pronounced in the 1930, 1939, 1949 and 1968 revisions. Analysis of atherosclerosis death rates over the time period 1900-1983 requires detailed study to maintain comparability.

Michigan were below national rates. Since 1980 the Michigan rate has exceeded the national rate. In 1983 the Michigan rate of 13.7 exceeded by 15.1 percent the provisional rate of 11.9 for the nation.

Age-adjusted atherosclerosis death rates have declined for all population groups in both Michigan and the United States since 1970 (Table 2.42). The rates for white Michigan residents were quite similar to those for the nation in 1974, but have held stable as national rates have declined progressively. Michigan's rates for other than white persons have been similarly stable but remain below the comparable rates for the nation (see Technical Notes). Rates for other than white persons were markedly lower than those for white persons in Michigan while these rates were roughly similar across the nation.

Nearly all atherosclerosis deaths are reported as generalized and/or unspecified as to type. Only 80 of the 1,269 deaths were in other classifications. Of these, 75 were attributed to atherosclerosis of arteries of the extremities (Table 2.43).

The 1981 through 1983 mortality data for Michigan indicate that females are more likely to eventually die from atherosclerosis than males. At birth, the likelihood for females is 0.029, while for males it is 0.015. These probabilities rise slowly through age 50 and increase rapidly beyond that age. By age 85, the probability of eventually dying from atherosclerosis is 0.054 for females and 0.040 for males (Figure 2.40).

Table 2.42
Age-Adjusted Atherosclerosis Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	8.1	8.9	7.4	8.2	9.1	7.5	6.2	6.3	5.9
	1971	7.9	9.0	7.1	8.2	9.3	7.3	4.5	4.6	4.4
	1972	7.4	8.7	6.4	7.6	9.0	6.6	4.1	4.1	4.0
	1973	7.2	8.4	6.3	7.5	8.8	6.4	4.0	3.4	4.4
	1974	7.3	8.1	6.7	7.6	8.5	6.9	4.1	4.0	4.1
	1975	6.7	7.5	6.0	6.9	7.7	6.2	4.2	5.0	3.4
	1976	7.0	8.4	6.0	7.3	8.8	6.2	3.0	3.6	2.5
	1977	6.6	7.5	6.0	6.9	7.8	6.2	3.5	3.5	3.6
	1978	6.4	7.2	5.8	6.6	7.4	5.9	4.0	4.6	3.6
	1979	6.3	7.1	5.7	6.3	7.2	5.8	5.3	6.3	4.5
	1980	6.6	7.5	6.0	6.7	7.7	6.0	5.4	5.7	5.2
	1981	6.3	7.2	5.7	6.6	7.5	6.0	3.4	4.0	3.0
	1982	6.4	7.3	5.7	6.6	7.6	5.9	4.1	4.7	3.4
	1983	6.2	6.7	5.8	6.4	7.0	6.0	4.1	4.4	3.9
U.S.	1970	8.4	9.5	7.5	8.4	9.6	7.5	8.2	9.1	7.5
	1971	8.1	9.2	7.4	8.1	9.3	7.3	7.8	8.3	7.3
	1972	8.2	9.3	7.4	8.1	9.2	7.3	8.4	9.6	7.4
	1973	7.9	8.9	7.2	7.9	8.9	7.2	7.7	8.5	7.1
	1974	7.5	8.5	6.8	7.5	8.6	6.8	7.3	8.2	6.5
	1975	6.5	7.4	5.8	6.5	7.4	5.9	6.1	7.0	5.3
	1976	6.3	7.2	5.7	6.4	7.3	5.7	5.7	6.3	5.2
	1977	6.1	7.0	5.4	6.1	7.1	5.4	5.6	6.5	5.0
	1978	5.9	6.8	5.2	5.9	6.8	5.3	5.5	6.3	4.9
	1979	5.7	6.5	5.0	5.6	6.5	5.0	5.6	6.3	5.1
	1980	5.7	6.6	5.0	5.6	6.5	5.0	5.9	6.8	5.2
	1981	5.2	6.0	4.6	5.2	6.0	4.5	5.2	5.8	4.7
	1982	4.8	5.7	4.2	4.8	5.7	4.2	4.6	5.4	4.0
	1983	4.5[4]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] The introduction in 1979 of the 9th Revision of the International Classification of Diseases, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 1.0649. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

[4] Provisional.

Table 2.43
Deaths Due to Atherosclerosis by Detailed Cause, Michigan Residents, 1983

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
440.9	Generalized and Unspecified Atherosclerosis .	1,189	93.7
440.2	Atherosclerosis of Arteries of the Extremities	75	5.9
440.0	Atherosclerosis of Aorta	4	0.3
440.1	Atherosclerosis of Renal Artery	1	0.1
	Total	1,269	100.0

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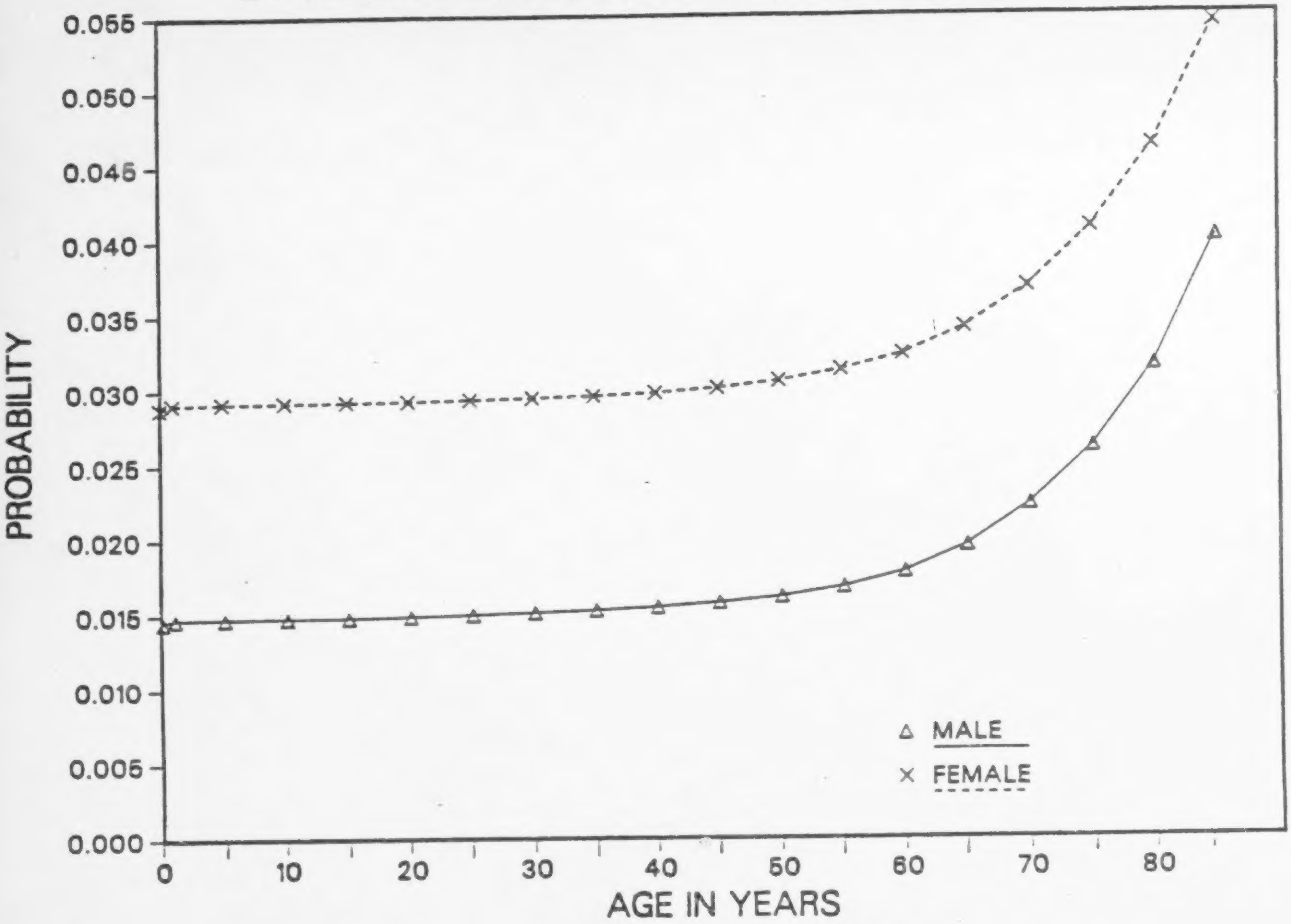
[1] Detailed List of the 9th Revision of the *International Classification of Diseases*, WHO.

FIGURE 2.40

PROBABILITY OF EVENTUALLY DYING FROM ATHEROSCLEROSIS BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC LIVER DISEASE AND CIRRHOSIS

The 9th leading cause of Michigan resident deaths in 1983 was chronic liver disease and cirrhosis. This category was termed cirrhosis of the liver prior to 1979. There were 1,250 deaths attributed to this category in 1983, of which 68.0 percent were to males.

The median age for deaths due to chronic liver disease and cirrhosis (59 years) was 13 years below that for deaths from all causes (Table 2.44). For deaths from this cause in 1983 the median age was 58 years males and 61 years for females. The median ages at death for white males and females were 60 and 64 years, respectively. For other than white males and females the median ages at death were 50 and 52 years, respectively.

Death rates for chronic liver disease and cirrhosis by age, race, and sex are presented in Table 2.45. In 1983 the crude rate for males was 2.2 times the rate for females while the age-adjusted rate for males was 2.6 times that for females. Age-specific rates for males ranged from 1.7 to 3.2 times those for females (Figure 2.41). The highest rate for both sexes was for the age group 65-74 years.

The crude mortality rate for deaths due to chronic liver disease and cirrhosis for other than white persons was 75.6 percent higher than that for white persons. The age-adjusted rate for other than white persons was 2.4 times the rate for white persons. The differential can be traced to the rates for ages 25 through 64. The highest age-specific rate for white persons was 53.4 deaths per 100,000 population in the age group 65-74 years. For other than white persons the peak rate (78.0) was observed for the age group 45-54 years (Figure 2.42).

Cirrhosis of the liver was the cause of death for 7.9 of every 100,000 Michigan residents in 1900. Death rates due to this cause rose to a peak of 13.1 in 1916, after which the relative frequency of cirrhosis deaths fell sharply, dropping to 7.4 in 1919. The Michigan rates held stable from this point until 1936 when they began increasing slowly. A peak of 12.4 was reached by 1948. The statistics for Michigan shown in Figure 2.43 after 1949 are not comparable with preceding years due to a revision of the underlying cause of death determination. By isolating the period 1950-1983, this problem can be ignored. Michigan's mortality rate for this disease doubled between 1950 and 1972, when the highest rate of the century was recorded (19.7). The rate of 13.7 in 1983 was 30 percent below the rate of 1972.

The cirrhosis of the liver mortality rate for the United States was well above Michigan's rate early in this

Table 2.44
Deaths Due to Chronic Liver Disease and Cirrhosis by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	1	1	-	1	1	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	1	1	-	1	1	-	-	-	-	-	-	-
20-24	5	2	3	1	1	-	4	1	3	-	-	-
25-29	17	11	6	10	7	3	7	4	3	-	-	-
30-34	54	34	20	22	11	11	32	23	9	-	-	-
35-39	65	46	19	37	27	10	28	19	9	-	-	-
40-44	69	55	14	41	33	8	28	22	6	-	-	-
45-49	115	87	28	82	61	21	33	26	7	-	-	-
50-54	152	113	39	108	81	27	44	32	12	-	-	-
55-59	177	123	54	126	89	37	51	34	17	-	-	-
60-64	175	122	53	148	107	41	27	15	12	-	-	-
65-69	180	111	69	154	89	65	26	22	4	-	-	-
70-74	125	83	42	119	79	40	6	4	2	-	-	-
75-79	68	38	30	62	35	27	6	3	3	-	-	-
80-84	30	15	15	30	15	15	-	-	-	-	-	-
85-89	16	8	8	15	7	8	1	1	-	-	-	-
90+	-	-	-	-	-	-	-	-	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1250	850	400	957	644	313	293	206	87	-	-	-
Median Age At Last Birthday	59	58	61	61	60	64	51	50	52	*	*	*

Table 2.45
Death Rates for Deaths Due to Chronic Liver Disease and Cirrhosis, by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	13.7	19.1	8.5	12.3	16.9	7.9	21.6	32.0	12.2
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.3	*	*	*	*	*	*	*	*
25-34 Years	4.4	5.6	3.2	2.3	2.6	2.0	15.8	24.0	8.9
35-44 Years	13.2	20.3	6.4	8.9	13.8	4.1	41.5	65.6	20.7
45-54 Years	30.3	46.7	14.8	24.7	37.6	12.2	68.7	114.7	30.8
55-64 Years	39.9	59.1	22.9	35.0	53.2	18.8	78.0	105.7	54.0
65-74 Years	53.3	77.9	34.3	53.4	75.6	36.4	51.9	96.7	17.3
75-84 Years	34.8	51.1	25.4	36.1	53.7	26.0	22.9	*	*
85 Years and Over	18.0	30.1	12.9	18.2	28.5	13.9	*	*	*
Age-Adjusted Rate[2]	12.6	18.8	7.2	10.6	15.8	6.1	25.9	40.5	13.9

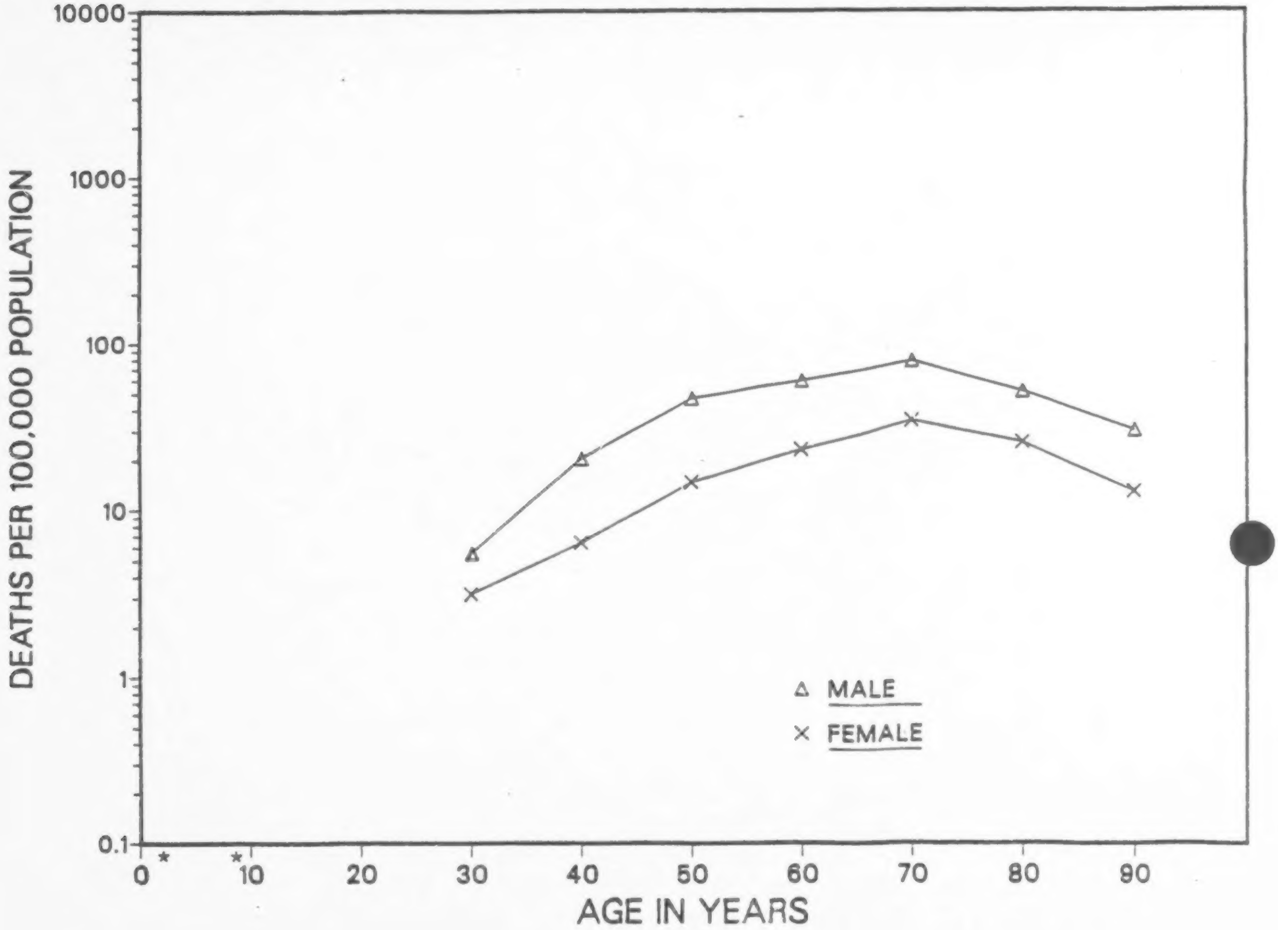
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.41
AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1983

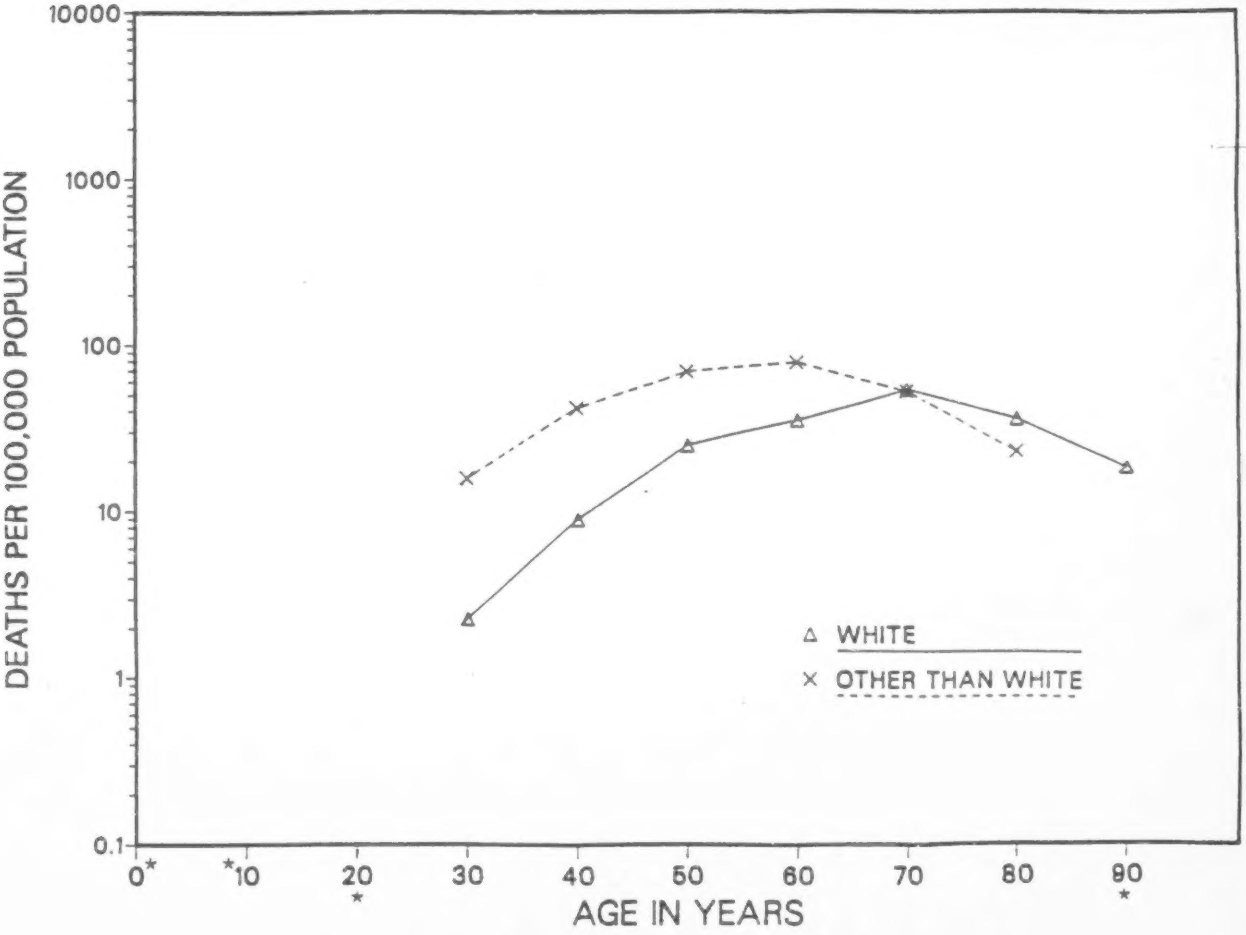


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.42

AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1983



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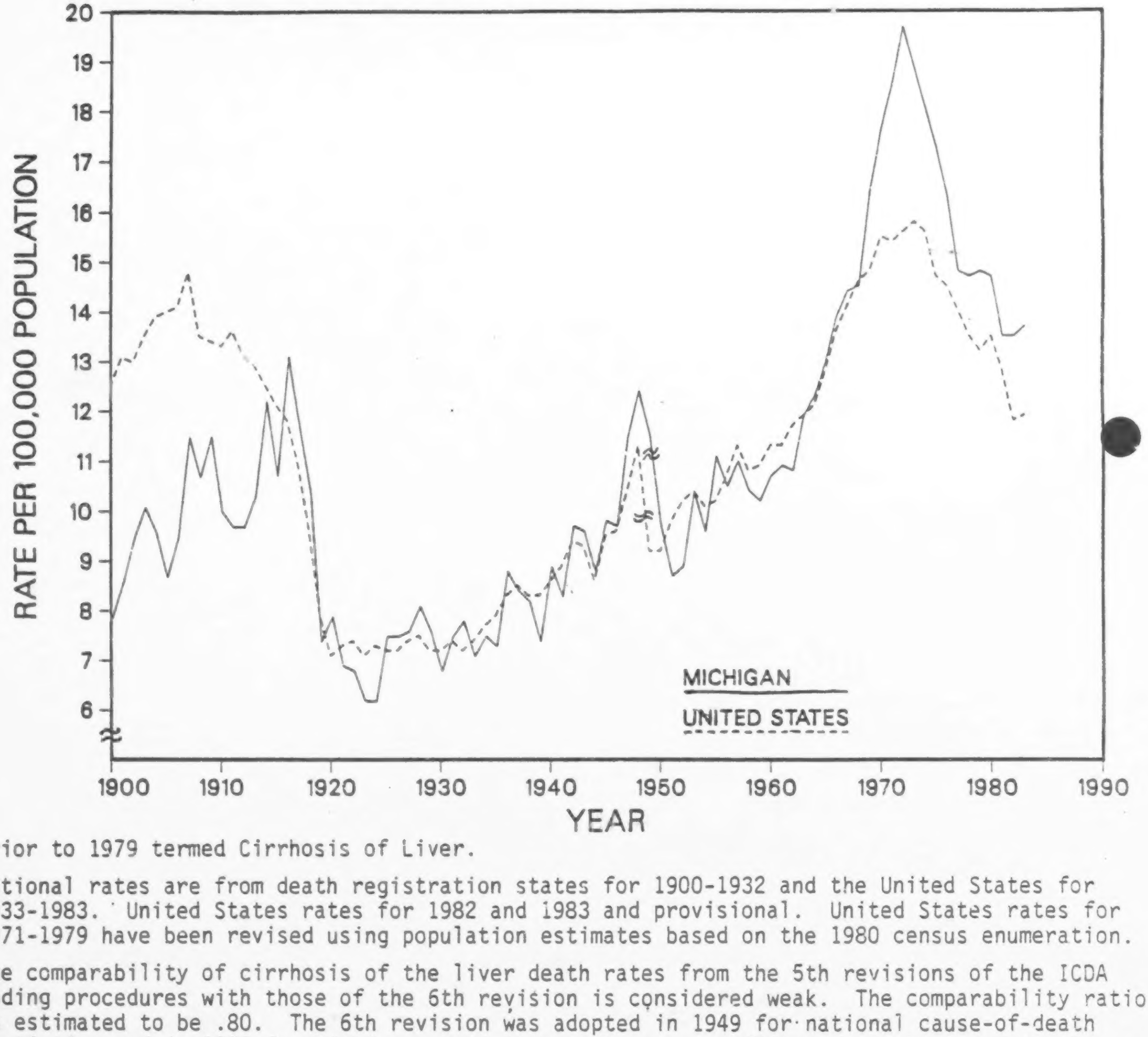
[1] Note that death ratas are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.43

CHRONIC LIVER DISEASE AND CIRRHOSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[2] 1900-1983[3]



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[1] Prior to 1979 termed Cirrhosis of Liver.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 and provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[3] The comparability of cirrhosis of the liver death rates from the 5th revisions of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .80. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cirrhosis of the liver death rates through the 6th, 7th, 8th and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

century. The highest rate for the nation during the first half of the century occurred in 1907 (14.8). The rates for Michigan and the nation were similar from about 1916 through 1968. Between 1968 and 1972, rates for Michigan rose above those for the nation. The sharp drop in Michigan's rate since 1972 has brought the statistic for the state closer to the national figure. In 1983 the chronic liver disease and cirrhosis death rate of 13.7 for Michigan was 15.1 percent above the provisional rate of 11.9 for the nation.

Age-adjusted death rates by sex and race for chronic liver disease and cirrhosis for the years 1970-1983 are recorded in Table 2.46 (see Technical Notes). These rates generally peaked about 1972 in Michigan and have tended to decline since then. For the U.S. the increases observed in the early part of the decade were less pronounced, as were the declines after that time. The rates in Michigan for other than white males have been substantially higher than for all other groups, including the rates for other than white males observed nationally. The rates for other than white females in Michigan have also been considerably higher than the comparable rates for the nation. Rates for white males in Michigan were higher than rates for white males nationally throughout the decade. Rates for white females in Michigan were higher than for their counterparts in the nation at the beginning of the decade. In recent years the rates for the two groups have been similar. The age-adjusted rate for the total population of Michigan in 1983 was 21.2 percent above the provisional rate for the United States.

Cirrhosis of the liver without mention of alcohol was the most frequently reported cause of deaths due to chronic liver disease and cirrhosis in 1983, resulting in 663 deaths (Table 2.47). The second largest category was alcoholic cirrhosis of the liver with 287 deaths. There were 70 deaths attributed to other chronic nonalcoholic liver disease. Including deaths due to alcoholic cirrhosis of the liver, alcoholic fatty liver, acute alcoholic hepatitis, and unspecified alcoholic liver damage, there were 499 deaths with mention of alcohol attributed to the category of chronic liver disease and cirrhosis.

The probability of eventually dying from chronic liver disease and cirrhosis, based upon Michigan mortality data from the years 1981-1983, is displayed in Figure 2.44 by age and sex. This graph reveals that the risk for males of dying from a disease in this category is roughly double that for females. At birth, males have a probability of 0.017 of eventually dying from chronic liver disease and cirrhosis. For females the probability is 0.009. These probabilities remain nearly constant for both sexes through age 40, whereupon the threat of death due to these diseases diminishes with advancing age. By age 85 the risk is 0.002

Table 2.46
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Liver Disease and Cirrhosis by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	17.7	24.9	11.2	15.6	22.0	9.7	34.8	48.3	22.5
	1971	18.7	25.6	12.3	16.2	22.2	10.7	37.7	53.3	23.7
	1972	19.8	27.8	12.5	17.0	24.4	10.3	41.2	54.9	28.8
	1973	18.8	26.7	11.7	16.3	23.2	10.1	37.9	54.2	23.4
	1974	17.9	25.8	10.8	14.7	21.5	8.7	41.8	59.7	25.9
	1975	17.1	23.9	11.1	14.4	20.2	9.2	37.5	52.1	24.6
	1976	15.9	23.0	9.6	13.6	19.8	8.0	32.9	47.2	20.4
	1977	14.5	20.6	9.1	12.1	17.6	7.2	31.7	42.9	22.0
	1978	14.2	19.6	9.3	12.0	16.9	7.8	29.6	40.9	20.0
	1979	14.2	21.1	8.2	11.4	17.1	6.4	34.1	50.4	20.1
	1980	14.1	19.7	9.1	11.6	16.5	7.3	31.1	43.7	20.5
	1981	12.7	17.8	8.1	10.8	15.5	6.6	25.8	34.7	18.3
	1982	12.5	17.7	8.0	10.5	15.3	6.5	26.1	35.3	18.3
	1983	12.6	18.8	7.2	10.6	15.8	6.1	25.9	40.5	13.9
U.S.	1970	14.7	20.2	9.8	13.4	18.8	8.7	23.8	31.3	17.4
	1971	14.6	20.2	9.7	13.5	18.9	8.7	23.4	31.0	16.9
	1972	14.9	20.8	9.6	13.5	19.0	8.5	25.3	35.0	17.1
	1973	15.0	20.8	9.8	13.6	19.3	8.7	25.1	33.7	17.9
	1974	14.7	20.6	9.6	13.4	19.0	8.5	24.8	33.9	17.2
	1975	13.7	19.4	8.8	12.5	17.8	7.9	22.9	32.0	15.3
	1976	13.5	19.0	8.6	12.2	17.4	7.7	22.9	32.1	15.1
	1977	13.0	18.3	8.3	11.7	16.6	7.4	22.2	31.2	14.7
	1978	12.4	17.5	8.0	11.2	16.0	7.1	20.7	29.0	13.9
	1979	12.0	17.0	7.7	11.0	15.6	7.0	19.7	28.2	12.8
	1980	12.2	17.1	7.9	11.0	15.7	7.0	20.0	28.1	13.5
	1981	11.4	16.0	7.4	10.5	14.8	6.7	17.6	24.7	11.9
	1982	10.5	14.9	6.7	9.8	14.1	6.1	14.9	20.9	10.1
	1983	10.4[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

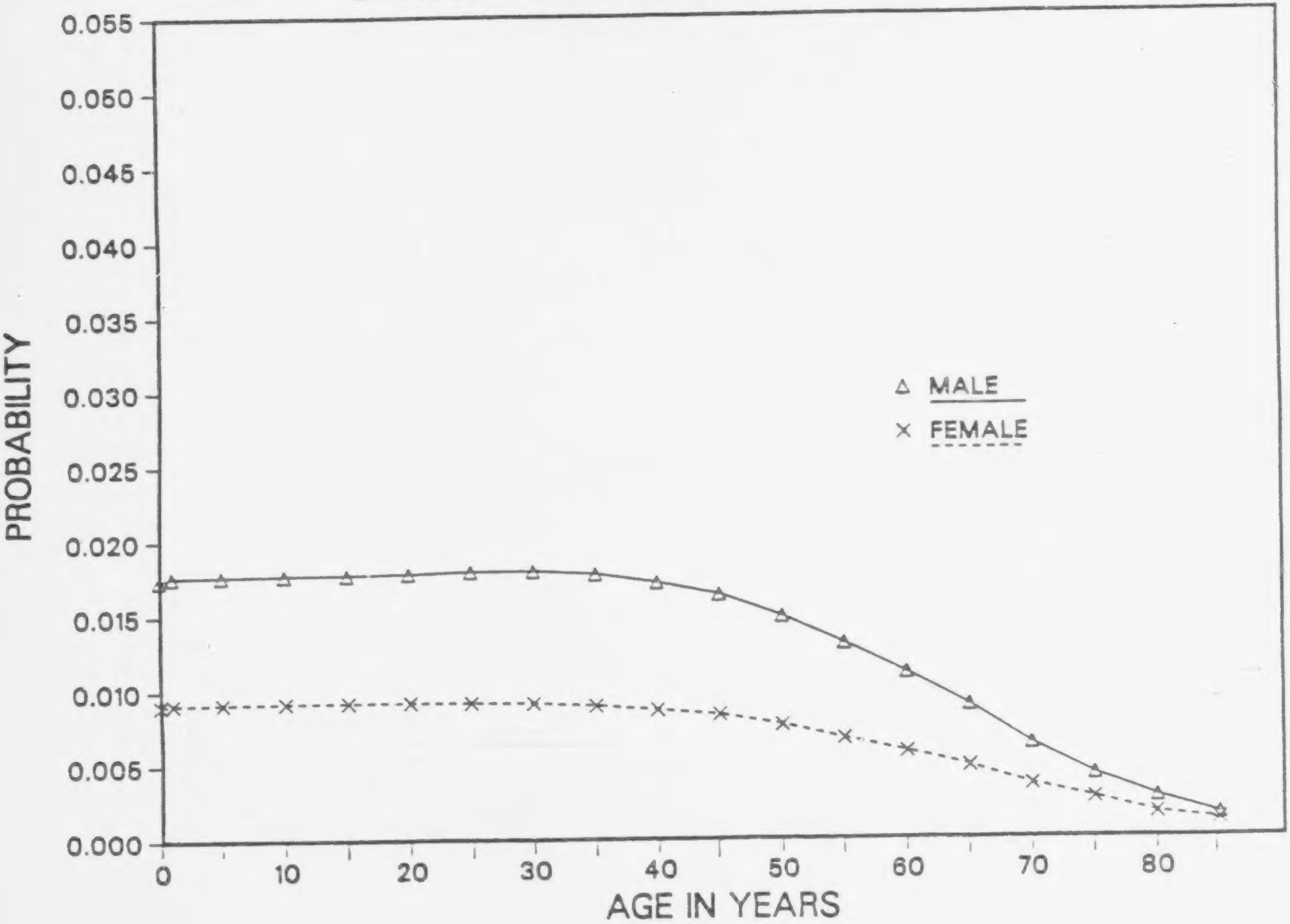
[3] Provisional.

Table 2.47
Deaths Due to Chronic Liver Disease and Cirrhosis by Detailed Cause, Michigan Residents, 1983

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
571.5	Cirrhosis of Liver Without Mention of Alcohol	663	53.0
571.2	Alcoholic Cirrhosis of Liver	287	23.0
571.0	Alcoholic Fatty Liver	131	10.5
571.3	Alcoholic Liver Damage, Unspecified	51	4.1
571.4	Chronic Hepatitis	32	2.6
571.1	Acute Alcoholic Hepatitis	30	2.4
571.8	Other Chronic Nonalcoholic Liver Disease . .	23	1.8
571.6	Biliary Cirrhosis	18	1.4
571.9	Unspecified Chronic Liver Disease Without Mention of Alcohol	15	1.2
	Total	1,250	100.0

[1] Detailed List of the 9th Revision of the *International Classification of Diseases*, WHO.

FIGURE 2.44
PROBABILITY OF EVENTUALLY DYING FROM CHRONIC LIVER DISEASE AND CIRRHOSIS BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

for males and 0.001 for females.

SUICIDE

There were a total of 1,084 suicide deaths in 1983, making suicide the 10th leading cause of death. Of the deaths resulting from suicide 77.6 percent were males. Of all suicide deaths 89.1 percent were to white persons.

Fifty percent of all suicide deaths occurred at or below the age of 40. The median age at death for males was 38 years, 5 years below that for females. The median ages at death for white males and females were 40 and 45 years respectively. For other than white males and females the median age at death was 31 years. There were 151 suicide deaths of white persons 65 years of age or older. This is 15.6 percent of all suicide deaths of white persons. Among persons of other races there were 16 suicide deaths at age 65 or over or 14.0 percent of the total(Table 2.48).

The crude suicide death rate in 1983 was 11.8 per 100,000 population. The crude rate for males (18.9) was 3.6 times that for females (5.2). Age-specific rates for males were higher in all age groups (Table 2.49 and Figure 2.45). While suicide rates for males were highest among men from 45-54 years and those aged 65 or older, the rates for females were highest from age 35 through 64 and declined in the older age groups. The greatest relative differential by sex was in the 15-24 year age group where the rate for males was 5.6 times that for females and at ages 65 and over.

The crude suicide death rate for the white population was 45.9 percent higher than that for the other than white population. The age-adjusted rate for white persons was 34.1 percent higher than that for other than white persons. Age-specific rates by race from Table 2.49 are displayed in Figure 2.46. Age-specific rates for white persons were greater than those for other than white persons in all categories with sufficient events to calculate rates.

There is strong similarity in both the trend and magnitude of suicide death rates for Michigan and the United States in this century (Figure 2.47). There were two complete cycles of rising then falling rates in the period 1900 through 1944. The rates then held fairly stable for about 20 years. Between 1964 and 1977 the suicide death rate increased by 39 percent in Michigan, reaching 14.0, the highest rate since 1938. The highest rate during this century for Michigan was 18.8 in 1931, while the lowest was the rate of 8.8 in 1900. For the nation high and low rates were observed in 1932 (17.4) and in 1957 (9.8). In 1983 the provisional rate for the United States was 12.4, compared to Michigan's rate of 11.8.

Age-adjusted suicide death rates by race and sex for Michigan and the United States are presented in Table 2.50.

Table 2.48
Deaths Due to Suicide by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	6	4	2	2	2	-	4	2	2	-	-	-
15-19	64	52	12	58	48	10	6	4	2	-	-	-
20-24	150	130	20	126	108	18	23	21	2	1	1	-
25-29	137	117	20	119	102	17	18	15	3	-	-	-
30-34	106	81	25	94	72	22	11	9	2	1	-	1
35-39	77	48	29	64	36	28	12	11	1	1	1	-
40-44	74	58	16	70	56	14	4	2	2	-	-	-
45-49	75	51	24	69	45	24	6	6	-	-	-	-
50-54	96	68	28	91	64	27	5	4	1	-	-	-
55-59	72	51	21	65	45	20	7	6	1	-	-	-
60-64	60	45	15	57	42	15	2	2	-	1	1	-
65-69	56	43	13	50	38	12	6	5	1	-	-	-
70-74	38	32	6	34	29	5	4	3	1	-	-	-
75-79	29	20	9	25	17	8	4	3	1	-	-	-
80-84	32	30	2	31	29	2	1	1	-	-	-	-
85-89	8	7	1	7	6	1	1	1	-	-	-	-
90+	4	4	-	4	4	-	-	-	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1084	841	243	966	743	223	114	95	19	4	3	1
Median Age At Last Birthday	40	38	43	40	40	45	31	31	*	*	*	*

Table 2.49
Suicide Death Rates by Age, Race, and Sex[1], Michigan Residents, 1983

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	11.8	18.9	5.2	12.4	19.5	5.6	8.5	14.9	2.7
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.3	*	*	*	*	*	*	*	*
15-24 Years	11.7	19.8	3.5	11.9	19.9	3.7	10.9	19.6	*
25-34 Years	15.0	24.7	5.5	15.6	25.3	5.8	11.7	21.3	3.7
35-44 Years	14.9	21.3	8.7	15.4	21.4	9.5	11.9	20.8	*
45-54 Years	19.4	27.8	11.5	20.8	28.9	13.0	9.8	19.8	*
55-64 Years	15.0	23.2	7.7	15.7	23.9	8.5	9.0	17.3	*
65-74 Years	16.4	30.1	5.9	16.4	30.1	5.9	16.2	29.8	*
75-84 Years	21.7	48.2	6.2	22.0	49.4	6.2	19.0	*	*
85 Years and Over	13.5	41.4	*	13.4	40.7	*	*	*	*
Age-Adjusted Rate[2]	11.4	18.2	5.2	11.8	18.5	5.5	8.8	16.1	2.7

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

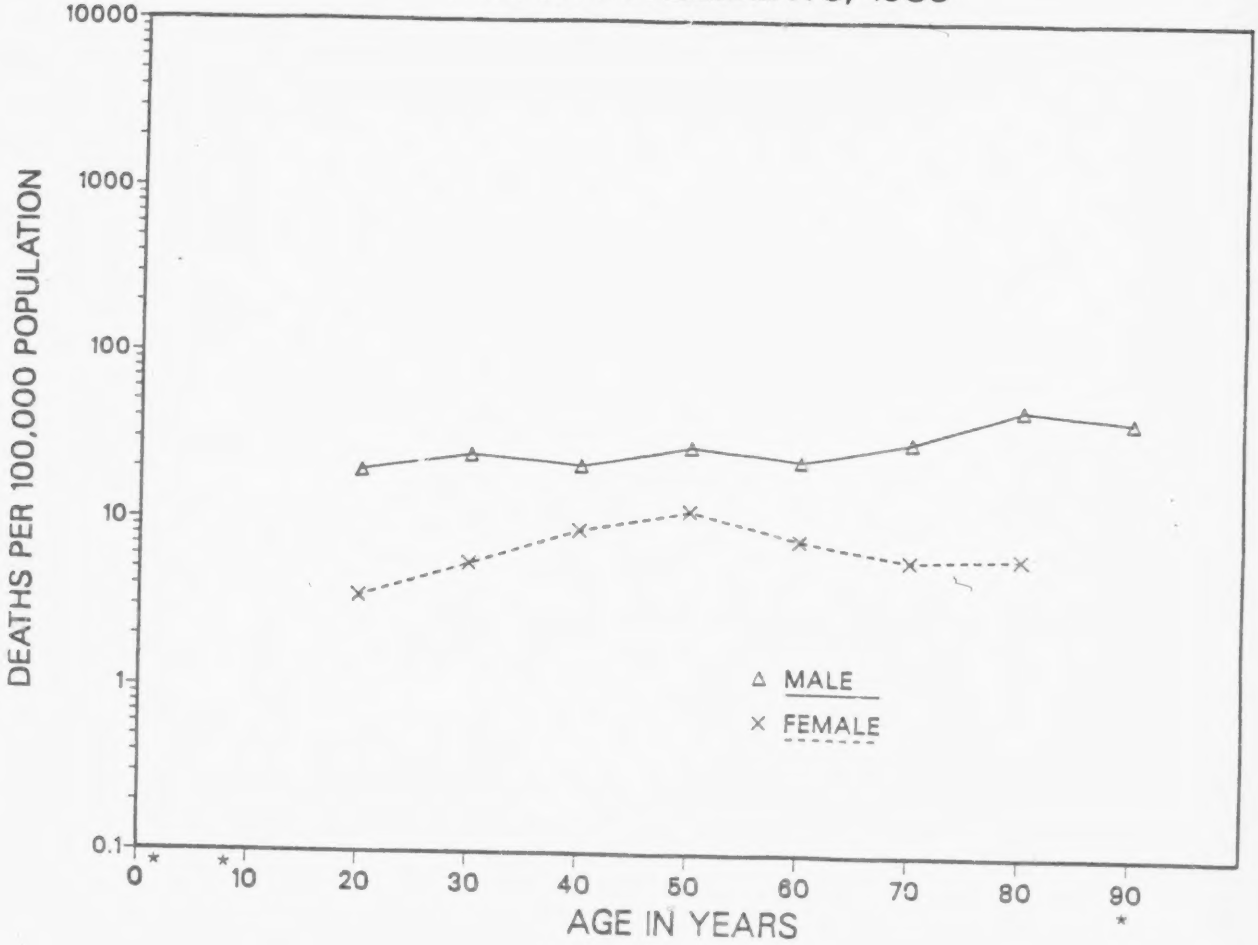
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

* Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 (see Technical Notes). Thus rates by race shown in this table are not comparable to those shown in the corresponding table in previous editions of this report.

FIGURE 2.45

AGE-SPECIFIC SUICIDE DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1983



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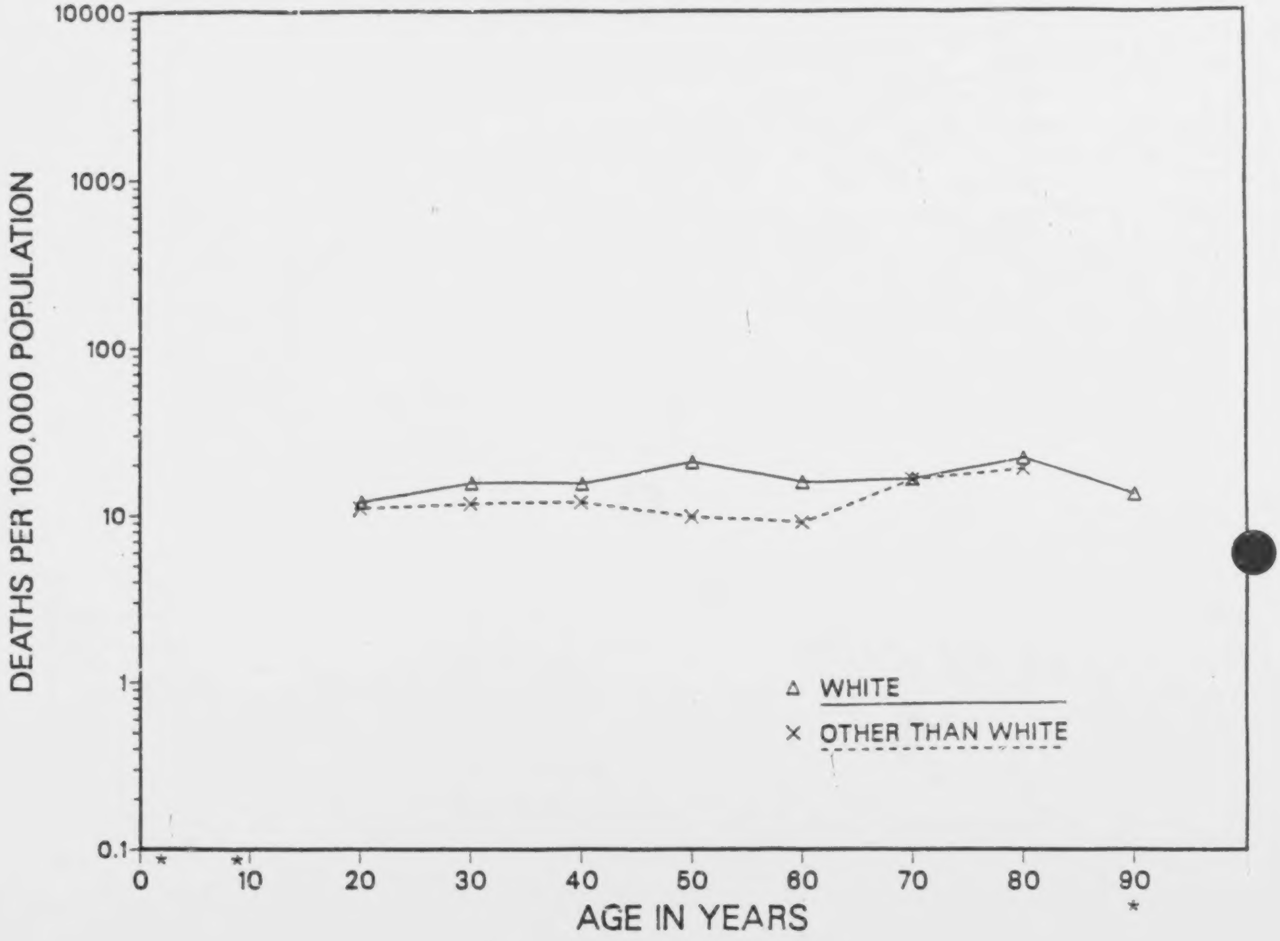
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.46
AGE-SPECIFIC SUICIDE DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1983



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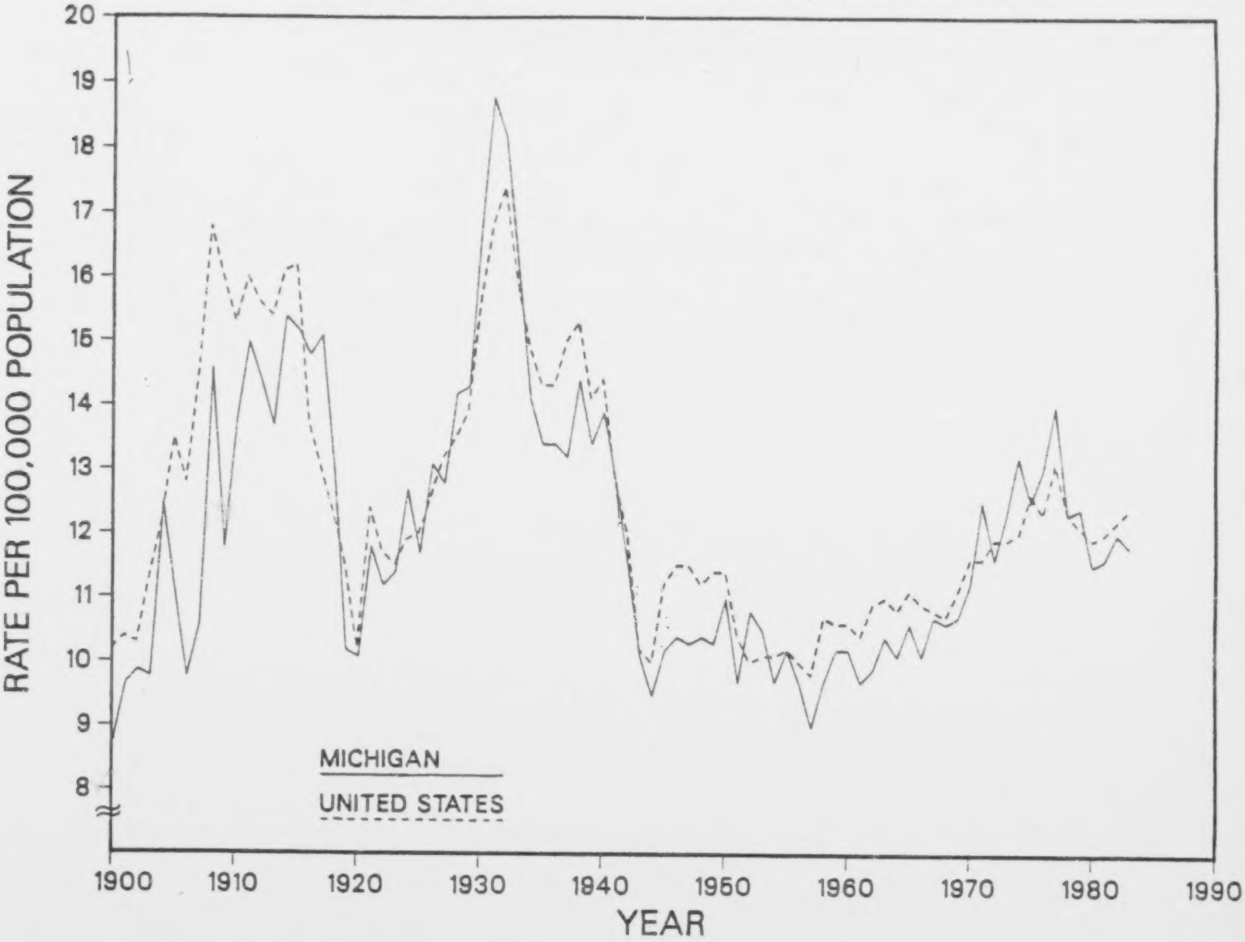
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.47

SUICIDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1983[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1983. United States rates for 1982 and 1983 are provisional. United States rates for 1971-1979 have been revised using population estimates based on the 1980 census enumeration.

[2] Suicide death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

For white females in Michigan the age-adjusted rate for suicide remained quite stable from 1970 through 1977, and has since declined, while that for white males increased between 1970 and 1977, and has held below that level through 1983. The rates for other than white persons, though exhibiting no clear trend, were consistently below those of their white counterparts throughout the period. The rates for other than white females have been below 3.0 since 1980. Rates for the nation were more stable. For white and other than white females the rates showed no clear trend. The rate for white males peaked in 1977, and the rate for other than white males increased by 27 percent between 1970 and 1979. The rates in Michigan for the other than white population were significantly higher than those of the nation. Rates in Michigan for the white population groups were similar to those of the nation. The age-adjusted rate for the total population of Michigan was at or above the comparable national rate each year from 1970 through 1982, declining below the national rate in 1983.

Suicides in Michigan were predominantly the result of one of four types of self-inflicted injury. Self-inflicted injury by firearms caused 576 deaths in 1983. Hanging, strangulation and suffocation resulted in 169 deaths. Self-inflicted poisoning by gases and vapors resulted in 143 deaths. There were 97 deaths due to poisoning by drugs, medicaments, and biologicals. Together these four types of suicide accounted for 90.9 percent of all suicide deaths to Michigan residents in 1983 (Table 2.51).

Using the Michigan mortality experience of 1981 through 1983, the chance of a male eventually dying from suicide is 0.014 at birth. The risk for females is 0.005. These probabilities hold relatively constant through age 20 then taper slowly with advancing age (Figure 2.48).

Table 2.50
Age-Adjusted Suicide Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1983

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	11.9	17.3	6.9	12.4	17.9	7.3	7.4	11.8	3.4
	1971	13.0	18.2	8.4	13.2	18.4	8.6	10.7	16.0	6.1
	1972	12.1	17.9	6.9	12.6	18.4	7.2	8.3	12.9	4.3
	1973	12.8	19.3	6.7	13.2	19.8	7.0	9.6	15.8	4.2
	1974	13.6	19.9	8.0	14.2	20.6	8.3	9.2	13.8	5.3
	1975	12.9	19.4	6.8	13.2	19.8	7.1	9.8	15.7	4.7
	1976	13.2	19.8	7.0	13.5	20.2	7.2	10.6	16.7	5.3
	1977	13.9	21.4	7.1	14.4	22.0	7.4	10.0	16.2	4.7
	1978	12.2	18.8	6.2	12.5	19.2	6.2	10.2	15.5	5.8
	1979	12.2	18.6	6.3	12.3	18.7	6.4	11.4	18.0	5.6
	1980	11.2	17.7	5.2	11.7	18.2	5.6	7.9	13.7	2.9
	1981	11.3	17.4	5.8	11.9	18.0	6.3	7.3	13.1	2.3
	1982	11.6	18.3	5.4	12.2	19.0	5.8	7.4	12.6	2.9
	1983	11.4	18.2	5.2	11.8	18.5	5.5	8.8	16.1	2.7
U.S.	1970	11.8	17.3	6.8	12.4	18.2	7.2	6.5	10.3	3.3
	1971	11.8	17.2	7.0	12.4	18.0	7.4	6.7	10.1	3.8
	1972	12.1	17.8	6.9	12.6	18.4	7.3	7.4	11.8	3.6
	1973	11.9	17.8	6.6	12.5	18.6	7.0	7.1	11.5	3.3
	1974	12.1	18.1	6.6	12.7	18.9	7.0	7.1	11.6	3.2
	1975	12.5	18.8	6.8	13.2	19.6	7.3	7.4	11.9	3.5
	1976	12.1	18.3	6.6	12.7	19.0	7.0	7.4	12.1	3.4
	1977	12.8	19.4	6.7	13.5	20.3	7.1	7.6	12.2	3.6
	1978	11.9	18.2	6.1	12.5	19.0	6.6	7.2	11.9	3.2
	1979	11.7	17.9	5.9	12.2	18.6	6.3	7.7	12.7	3.3
	1980	11.4	18.0	5.4	12.1	18.9	5.7	6.7	11.3	2.8
	1981	11.5	18.0	5.7	12.2	18.9	6.0	6.8	11.2	3.0
	1982	11.6	18.3	5.4	12.4	19.4	5.8	6.4	10.8	2.6
	1983	11.7[3]	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

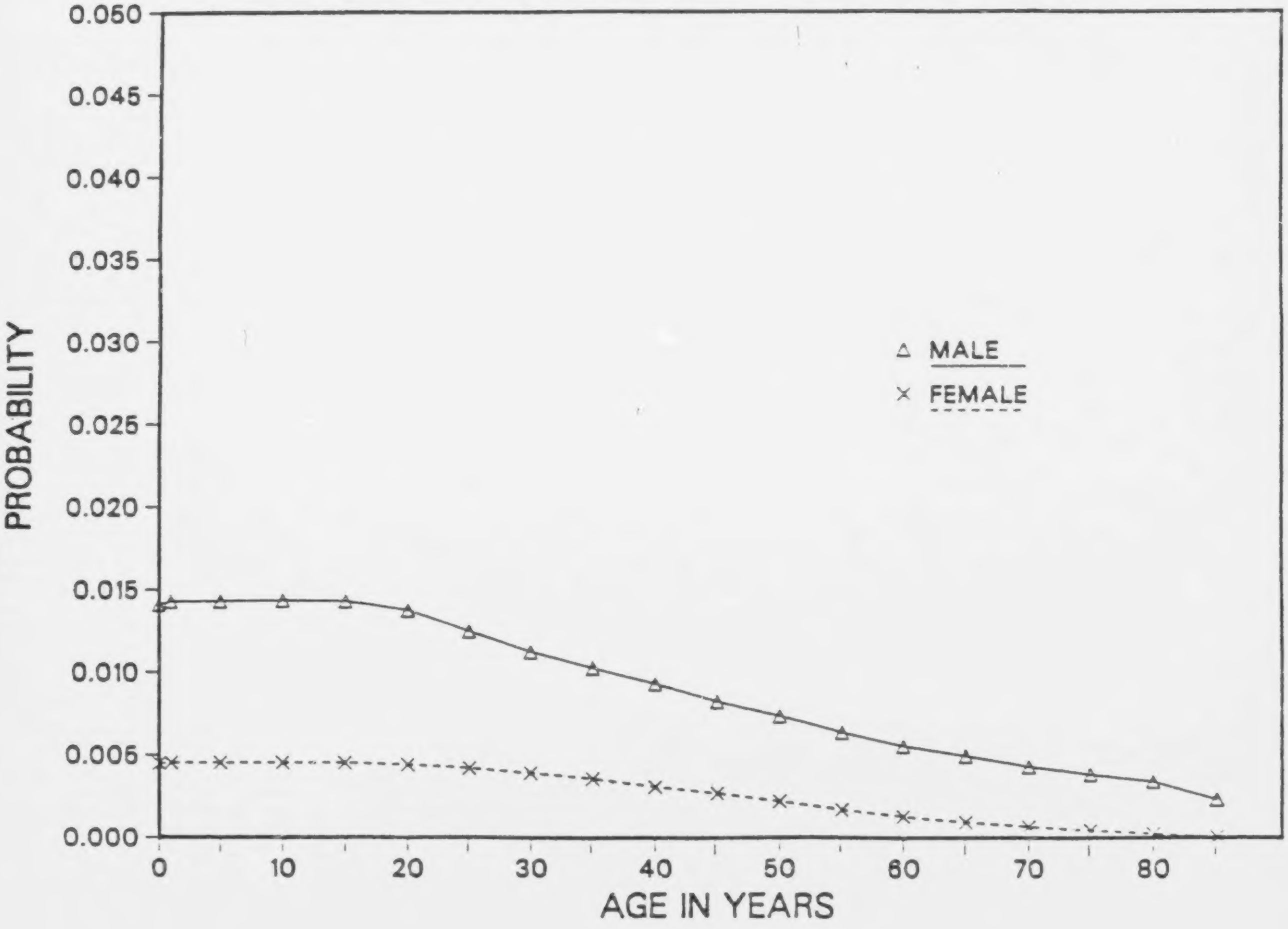
Table 2.51
Deaths Due to Suicide by Method, Michigan Residents, 1983

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
269	Suicide by All Other and Unspecified Firearms . . .	576	53.1
267	Suicide by Hanging, Strangulation, and Suffocation .	169	15.6
266	Suicide by Gases and Vapors	143	13.2
264	Suicide by Drugs, Medicaments, and Biologicals . . .	97	8.9
270	Suicide by All Other Means and Late Effects of Self-Inflicted Injury	76	7.0
265	Suicide by Other Solid or Liquid Substances	12	1.1
268	Suicide by Handguns	11	1.0
	Total	1,084	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the _International Classification of Diseases_, WHO.

FIGURE 2.48

PROBABILITY OF EVENTUALLY DYING FROM SUICIDE BY AGE AND SEX, MICHIGAN RESIDENTS, 1981-1983[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

THE PROBABILITY OF EVENTUAL DEATH DUE TO A SPECIFIED CAUSE

While cause-specific death rates are useful in gauging the frequency of death due to certain causes and in making comparisons between areas or populations, they do not relate the risk that the condition imposes on the population with clarity. Mortality data can be used to develop this risk in probabilistic terms. Through the application of life expectancy techniques, a probability of death due to a given cause can be estimated. Such probabilities represent the average risk of eventual death being caused by a specified condition under an assumption that the mortality across all ages that was observed in a time period will remain unchanged through the remaining life of the population. These probabilities can be estimated for any given age attained. The following table relates the probability at birth of dying from the ten leading causes of death based upon Michigan mortality experience for the years 1981 through 1983.

DISEASE CATEGORY	PROBABILITY AT BIRTH OF EVENTUAL DEATH DUE TO CONDITION FOR:	
	Males	Females
Diseases of the Heart	.419	.436
Malignant Neoplasms	.217	.189
Cerebrovascular Diseases	.067	.109
Accidents and Adverse Effects	.037	.021
Chronic Obstructive Pulmonary Diseases and Allied Conditions	.041	.020
Pneumonia and Influenza	.027	.029
Diabetes Mellitus	.015	.023
Atherosclerosis	.015	.029
Chronic Liver Disease and Cirrhosis	.017	.009
Suicide	.014	.005
All Other Causes	.131	.130
Total	1.000	1.000

The 1981 through 1983 data would indicate that 86.9 percent of all males and 87.0 percent of all females in Michigan will die from one of the ten leading causes if all things remain constant. Approximately four of every ten people will die from heart disease. Women face higher risks of death from heart disease, cerebrovascular disease, diabetes mellitus, and atherosclerosis than do males. At the same time, males are more likely to die from cancer, accidents, chronic obstructive pulmonary diseases and allied conditions, chronic liver disease and cirrhosis, and suicide.

Related to the probability at birth of eventual death due to a given cause is the hypothetical gain in life expectancy that would result if a given cause of death were eliminated. Based on 1981-1983 mortality data, the average number of years of life gained by eliminating deaths due to a major cause is given in the table that follows. Deaths in infancy from all causes are added for comparative purposes.

DISEASE CATEGORY ELIMINATED	YEARS GAINED IN LIFE EXPECTANCY FOR:	
	Males	Females
Diseases of the Heart	4.86	3.37
Malignant Neoplasms	2.79	2.84
Cerebrovascular Diseases	0.54	0.72
Accidents and Adverse Effects	1.10	0.48
Chronic Obstructive Pulmonary Diseases and Allied Conditions	0.35	0.24
Pneumonia and Influenza	0.20	0.16
Diabetes Mellitus	0.16	0.23
Atherosclerosis	0.06	0.08
Chronic Liver Disease and Cirrhosis	0.32	0.19
Suicide	0.39	0.15
All Causes of Infant Mortality	0.96	0.83

The largest gains in life expectancy would result from the elimination of heart disease and cancer, the two leading causes of death. Considering the number of deaths involved, relatively large gains in life expectancy would result from the elimination of infant mortality, accidents, and suicide. Eliminating deaths in the younger age groups, where many of the deaths from these causes occur, has a greater impact on the potential number of years of life to be gained than eliminating deaths in the older age groups.

INFANT DEATHS

Of the 76,639 deaths occurring to Michigan residents in 1983, 1,573 occurred to individuals less than one year of age. The number of infant deaths declined steadily each year from 1958 through 1980, with the single exception of 1970. This frequency held steady in 1981 then declined again in 1982 and 1983. Since 1970 the frequency of infant deaths has declined by 55.0 percent when there were 3,492 such deaths (Table 2.52). Nationally, the number of infant deaths in 1983 was 39,400 (provisional). This was 47.2 percent below the number in 1970.

The rate of death for infants under the age of one year has dropped considerably since 1900. In that year there were 157.1 infant deaths for every 1,000 live births. This means that about 16 of every 100 infants did not survive their first year. This rate fell below 100 by 1914 (96.8), to less than 70 by 1927 (67.7), and to less than 50 by 1937 (47.8). During the 1940's the Michigan infant death rate declined from 40.6 in 1940 to 28.9 in 1949. Relative declines in rate slowed considerably in the 1950's and 1960's. It was not until 1971 that the rate dropped below 20 to 19.5. The rate of decline between 1970 and 1980 compares favorably with the rate of decline observed before 1950. The infant death rate for Michigan rose in 1981 for the first such increase since 1970. This rate then declined in 1982 and 1983. In 1983, the Michigan infant mortality rate was 11.8 (Figure 2.49).

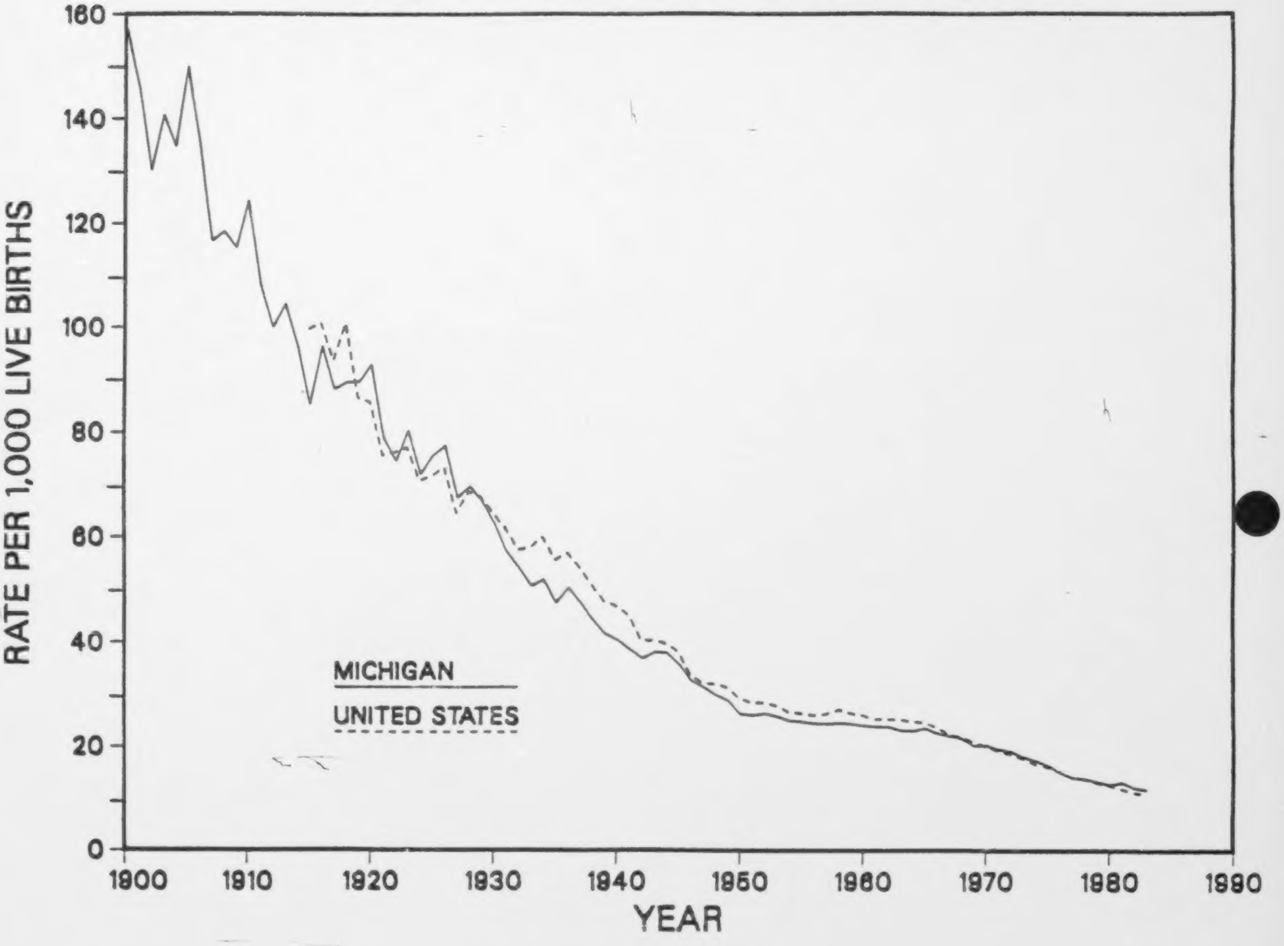
During the period 1915-1928, the rate for Michigan was above that for the United States 9 of 14 years. From 1929 through 1969, Michigan's infant death rate was consistently below the national statistic. From 1970 through 1975 the infant mortality rate in Michigan was slightly higher than the rate for the nation. From 1976 through 1980 the rates for the state and nation were similar. Since 1980 the rate for Michigan has been 8 to 10 percent above the national rate. The provisional rate for the United States in 1983 was 10.9.

Table 2.53 shows the numbers of infant deaths and infant death rates by age at death for the period 1970-1983. The number of infants that died during the first day of life in 1983 (672) is greater than the number of deaths of infants aged 7-364 days (663). 67.8 percent of all infant deaths occurred within the first month of life in 1983, and 57.9 percent occurred in the first week. These percentages were 74.3 and 66.8 percent in 1973. A review of Table 2.53 reveals that the 34.7 percent decline in the infant mortality rate since 1973 stems largely from reductions in the rate of death for those less than 7 days of age. The death rate for infants during their first day of life has declined 36.8 percent since 1973, while the death rate for

Table 2.52
Infant Deaths and Infant Mortality Rates, Michigan and United States Residents, 1970-1983

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
74,667	20.0	1970	3,492	20.3
67,981	19.1	1971	3,157	19.5
60,182	18.5	1972	2,801	19.1
55,581	17.7	1973	2,561	18.1
52,776	16.7	1974	2,387	17.4
50,525	16.1	1975	2,205	16.5
48,265	15.2	1976	1,978	15.1
46,975	14.1	1977	1,945	14.1
45,945	13.8	1978	1,931	13.9
45,665	13.1	1979	1,921	13.3
45,526	12.6	1980	1,851	12.8
43,305	11.9	1981	1,851	13.2
41,700Pr.	11.2Pr.	1982	1,672	12.1
39,400Pr.	10.9Pr.	1983	1,573	11.8

FIGURE 2.49
INFANT MORTALITY RATES, MICHIGAN RESIDENTS, 1900-1983 AND UNITED STATES RESIDENTS,[1] 1915-1983



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[1] United States rates for 1982 and 1983 are provisional.

Table 2.53
Infant Deaths and Mortality Rates by Age at Death, Michigan Residents, 1973-1983

YEAR	AGE AT DEATH									
	TOTAL INFANT DEATHS		UNDER 1 DAY		1-6 DAYS		7-27 DAYS		28-364 DAYS	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1973	2,561	18.09	1,131	7.99	579	4.09	192	1.36	659	4.66
1974	2,387	17.37	940	6.84	569	4.14	225	1.64	653	4.75
1975	2,205	16.46	856	6.39	461	3.44	246	1.84	642	4.79
1976	1,978	15.06	829	6.31	402	3.06	193	1.47	554	4.22
1977	1,945	14.05	794	5.74	374	2.70	199	1.44	578	4.18
1978	1,931	13.91	717	5.17	384	2.77	180	1.30	650	4.68
1979	1,921	13.30	754	5.22	356	2.46	185	1.28	626	4.33
1980	1,851	12.75	790	5.44	310	2.14	184	1.27	567	3.91
1981	1,851	13.17	815	5.80	296	2.11	170	1.21	570	4.05
1982	1,672	12.12	751	5.44	284	2.06	167	1.21	470	3.41
1983	1,573	11.82	672	5.05	238	1.79	157	1.18	506	3.80

ages 1-6 days has declined by 56.2 percent over the last twelve years. In contrast, the death rate for infants aged 7-27 days actually increased in the mid-1970's before dropping to 13.2 percent below the 1973 level. The death rate for infants aged 28-364 days was quite stable from 1973 through 1975. This rate fell in 1976 and 1977 but increased in 1978 to about the same level as observed in 1970. The death rate for this age group has oscillated since 1978. In 1983 the death rate for infants aged 28-364 days was 3.80, above the 1982 figure but 18.5 percent below the comparable rate for 1973.

Infant mortality rates have varied considerably by race. Rates for white and other than white infants since 1950 are graphically displayed in Figure 2.50. Rates for other than white infants were higher throughout the period. Although the rates for both race groups have declined, those for white infants have decreased by a relatively larger amount. As a result, the racial differential in infant mortality rates has increased since 1950. Between 1950 and 1965, the infant mortality rate for white infants declined moderately while that for other than white infants remained relatively stable. Between 1965 and 1970 the rate for white infants declined by 14.7 percent while the rate for other than white infants declined by 20.5 percent. Since 1970, however, the rate for white infants has dropped by 51.9 percent while for other than white infants the decline was 25.8 percent. The rate for other than white infants of 35.6 in 1950[2] was 40.2 percent higher than that for white infants (25.4) whereas in 1983 the rate for other than white infants of 22.1 was 2.3 times that for white infants (19.6).

Michigan resident infant deaths in 1983 are listed by cause of death classification and age at death in Table 2.54. Congenital anomalies caused the death of 286 infants and was the specific disease category most frequently reported. Sudden infant death syndrome was responsible for 214 infant deaths in 1983, while respiratory distress syndrome was listed as the cause of 174 deaths. Over half (53.9 percent) of all infant deaths were attributed to conditions originating in the perinatal period. This proportion was 84.5 percent for deaths which occurred during the first day, 65.5 percent for deaths of infants at ages 1 through 6 days, and 47.8 percent for deaths of infants 1-3 weeks of age. This percentage was 8.7 percent for infants from 1-5 months and 13.0 percent for those 6-11 months of age.

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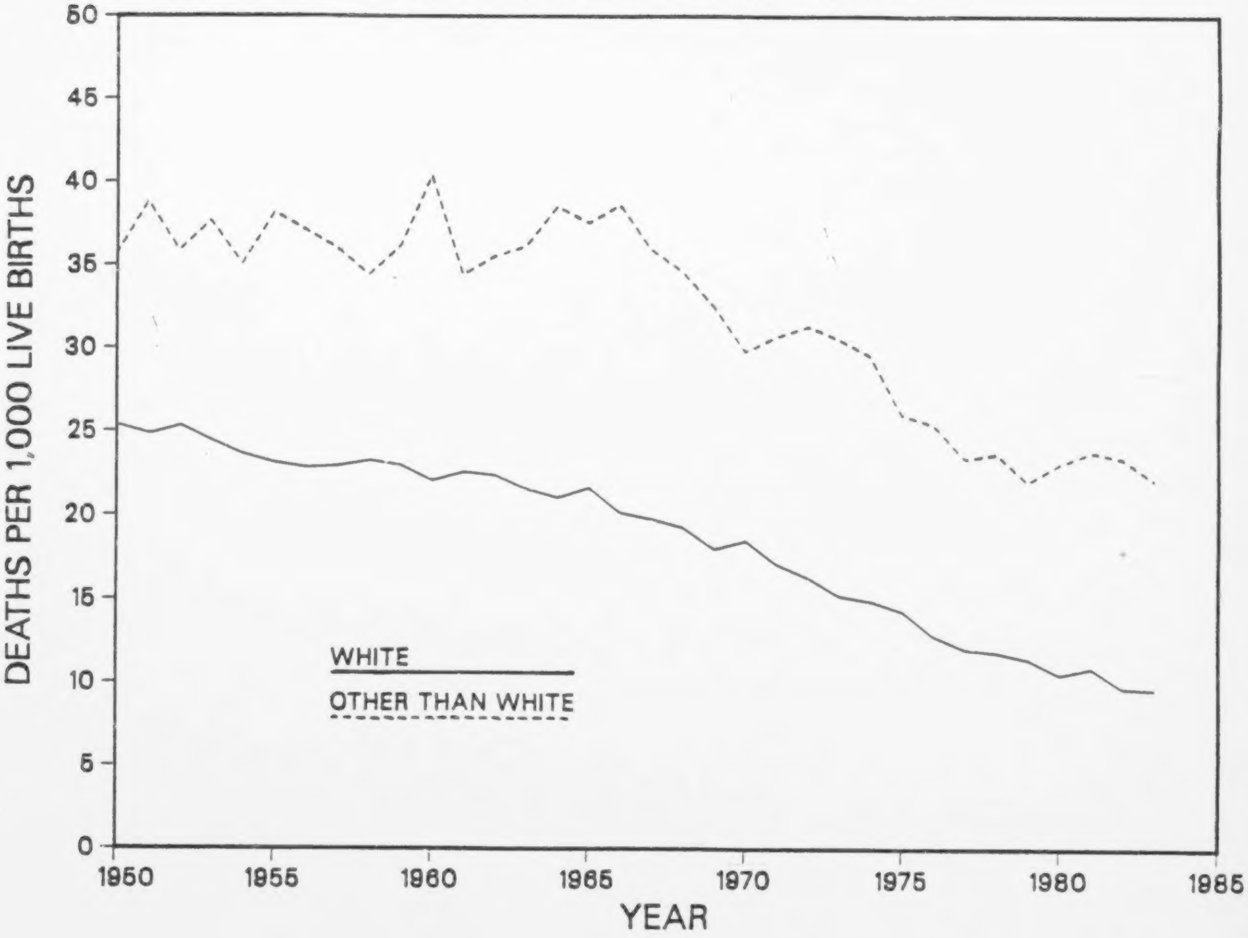
[2] Rates for other than white infants for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white. From another perspective the infant death rate for other than white infants in 1983 is the same as the mortality rate experienced by white infants in 1960.

FIGURE 2.50
INFANT DEATH RATES BY RACE,[1] MICHIGAN RESIDENTS, 1950-1983



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[1] Other than white rates for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white.

Table 2.54
Infant Deaths by Age at Death and Underlying Cause, Michigan Residents, 1983

ICD - 9 CODE	CAUSE OF DEATH	AGE AT DEATH					
		TOTAL UNDER 1 YEAR	UNDER 1 DAY	1-6 DAYS	7-27 DAYS	1-5 MONTHS	6-11 MONTHS
8, 9, 535, 555-558	Certain gastrointestinal diseases	9	-	1	1	4	3
38	Septicemia	7	-	-	-	7	-
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	6	-	-	3	2	1
320-322	Meningitis	15	-	2	-	5	8
480-487	Pneumonia and influenza	14	-	1	1	12	-
740-759	Congenital anomalies	286	91	69	43	63	20
761	Newborn affected by maternal complications of pregnancy	57	54	3	-	-	-
762	Newborn affected by complications of placenta, cord and membranes	31	27	-	3	1	-
765	Disorders relating to short gestation and unspecified low birthweight	134	132	2	-	-	-
767	Birth trauma	23	5	11	6	1	-
768	Intrauterine hypoxia and birth asphyxia	51	35	9	6	1	-
769	Respiratory distress syndrome	174	71	74	17	11	1
770	Other respiratory conditions of newborn	184	109	28	19	15	13
771	Infections specific to the perinatal period	26	8	9	6	2	1
772	Neonatal hemorrhage	20	8	6	4	2	-
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	148	119	14	14	1	-
760-779	Certain conditions originating in the perinatal period	848	568	156	75	34	15
798.0	Sudden infant death syndrome	214	-	2	20	174	18
E800-E949	Accidents and adverse effects	41	3	1	2	18	17
E960-E969	Homicide	7	1	1	-	3	2
Residual	All other causes	126	9	5	12	69	31
	Total	1,573	672	238	157	391	115

The most frequent cause of death category during the first day was disorders relating to short gestation and unspecified low birthweight (19.6 percent). Congenital anomalies were also responsible for 13.5 percent of the deaths during the first day of life. Respiratory distress syndrome and other respiratory conditions of the newborn caused 10.6 percent and 16.2 percent respectively of the deaths under 1 day of age. Congenital anomalies and respiratory distress syndrome were the leading causes of death for infants 1-6 days of age (29.0 percent and 31.1 percent respectively). For infants who died at 1-3 weeks of age the most frequent causes were also congenital anomalies (27.4 percent) and other respiratory conditions (12.1 percent). Sudden infant death syndrome was reported as the cause of 44.5 percent of the deaths to infants from 1-5 months of age. The leading cause of death for infants from 6-11 months of age was congenital anomalies (17.4 percent). The 17 deaths due to accidents to infants aged 6-11 months represent 14.8 percent of the total deaths in this age group, while accidental deaths represent only 2.6 percent of all infant deaths.

Infant deaths and death rates by cause are shown for white and other than white infants in Table 2.55. The most frequent causes of death for white infants were congenital anomalies (225 deaths), respiratory distress syndrome(128 deaths), and sudden infant death syndrome (149 deaths). For other than white infants a grouping of all other and ill defined conditions was the leading cause (81 deaths), followed by sudden infant death syndrome, disorders relating to short gestation and unspecified low birthweight and the congenital anomalies (65, 62 and 61 deaths respectively). While the death rate from all causes combined for other than white infants was 2.3 times that for white infants, the rates for this group were 3 or more times those for white infants in five cause of death categories. The differential for all other and ill-defined conditions originating in the perinatal period was highest at 5.6 times the rate for white infants. Cause-specific infant death rates for other than white infants were higher for all categories with sufficient events to calculate rates for both groups. Relatively small differentials were in the categories of congenital anomalies, complications of the placenta,cord and membranes, respiratory distress and infections specific to the perinatal period.

The infant death rate from all causes for males was 16.3 percent greater than that for females. The differential for deaths due to sudden infant death syndrome was 32.2 percent. The largest relative differential in rate by sex was for accidents and adverse effects where the rate for males was 2.3 times that for females (Table 2.56).

Infant mortality rates by race are presented in Table

Table 2.55
Infant Deaths and Infant Death Rates by Race of Infant and Underlying Cause, Michigan Residents, 1983

ICD - 9 CODE	CAUSE OF DEATH	RACE OF INFANT					
		TOTAL[1]		WHITE		OTHER THAN WHITE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	9	6.8	8	7.3	1	*
38	Septicemia	7	5.3	4	*	3	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	6	4.5	3	*	3	*
320-322	Meningitis	15	11.3	8	7.3	7	29.7
480-487	Pneumonia and influenza	14	10.5	8	7.3	6	25.4
740-759	Congenital anomalies	286	215.0	225	205.8	61	258.5
761	Newborn affected by maternal complications of pregnancy	57	42.8	40	36.6	14	59.3
762	Newborn affected by complications of placenta, cord and membranes	31	23.3	22	20.1	9	38.1
765	Disorders relating to short gestation and unspecified low birthweight	134	100.7	72	65.9	62	262.7
767	Birth trauma	23	17.3	15	13.7	8	33.9
768	Intrauterine hypoxia and birth asphyxia	51	38.3	36	32.9	15	63.6
769	Respiratory distress syndrome	174	130.8	128	117.1	46	194.9
770	Other respiratory conditions of newborn	184	138.3	115	105.2	69	292.4
771	Infections specific to the perinatal period	26	19.5	21	19.2	5	21.2
772	Neonatal hemorrhage	20	15.0	13	11.9	7	29.7
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	148	111.3	67	61.3	81	343.2
760-779	Certain conditions originating in the perinatal period	848	637.5	529	483.8	316	1,338.9
798.0	Sudden infant death syndrome	214	160.9	149	136.3	65	275.4
E800-E949	Accidents and adverse effects	41	30.8	26	23.8	15	63.6
E960-E969	Homicide	7	5.3	4	*	3	*
Residual	All other causes	126	94.7	84	76.8	41	173.7
	Total	1,573	1,182.5	1,048	958.5	521	2,207.5

[1] Records with race not stated are included only in total columns.
[2] Rates per 100,000 live births.

Table 2.56
Infant Deaths and Infant Death Rates by Sex of Infant and Underlying Cause, Michigan Residents, 1983

ICD - 9 CODE	CAUSE OF DEATH	SEX OF INFANT					
		TOTAL[1]		MALE		FEMALE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	9	6.8	3	*	6	9.3
38	Septicemia	7	5.3	4	*	3	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	6	4.5	4	*	2	*
320-322	Meningitis	15	11.3	7	10.2	8	12.4
480-487	Pneumonia and influenza	14	10.5	12	17.5	2	*
740-759	Congenital anomalies	286	215.0	141	205.7	143	221.8
761	Newborn affected by maternal complications of pregnancy	57	42.8	27	39.4	30	46.5
762	Newborn affected by complications of placenta, cord and membranes	31	23.3	14	20.4	16	24.8
765	Disorders relating to short gestation and unspecified low birthweight	134	100.7	67	97.8	64	99.3
767	Birth trauma	23	17.3	13	19.0	10	15.5
768	Intrauterine hypoxia and birth asphyxia	51	38.3	29	42.3	22	34.1
769	Respiratory distress syndrome	174	130.8	100	145.9	74	114.8
770	Other respiratory conditions of newborn	184	138.3	98	143.0	85	131.8
771	Infections specific to the perinatal period	26	19.5	12	17.5	14	21.7
772	Neonatal hemorrhage	20	15.0	13	19.0	7	10.9
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	148	111.3	87	126.9	60	93.0
760-779	Certain conditions originating in the perinatal period	848	637.5	460	671.2	382	592.4
798.0	Sudden infant death syndrome	214	160.9	125	182.4	89	138.0
E800-E949	Accidents and adverse effects	41	30.8	29	42.3	12	18.6
E960-E969	Homicide	7	5.3	3	*	4	*
Residual	All other causes	126	94.7	77	112.3	49	76.0
	Total	1,573	1,182.5	865	1,262.1	700	1,085.6

[1] Records with sex not stated are included only in total columns.
[2] Rates per 100,000 live births.

2.57. These data are from a file of merged live birth and infant death information. The rates presented are for Michigan residents born in 1982. Note that this matched file is approximately 97.7 percent complete and, therefore, the rates presented are understated. The rates for black infants (24.1) and American Indian infants (16.4) were 2.6 and 1.7 times respectively that for white infants (9.4). The rate for infants of other races (5.6) was well below the rate for all infants. The death rate for infants aged less than seven days (hebdomadal deaths) showed similar variations by race (Table 2.58).

Data from the matched file on infant mortality rates by age of mother and race of child are presented in Table 2.59. Infant death rates display a parabolic relationship with mother's age. The rates are highest for infants born to mothers under age 20. The infant mortality rates of 15.7 and 17.8 for mothers under 15 years old and 15-19 years old respectively are 1.5 times and 1.7 times as high as the rate of 10.2 for mothers aged 30-34 years. The infant mortality rate for mothers 40 or over is 3.2 percent higher than the lowest age-specific rate.

Rates for white infants generally follow the pattern of association to mother's age, but infant mortality rates for the other than white group are less variable and are significantly above those for the white group in all categories with a sufficient number of events to calculate rates. The smallest differential was for mothers under 20 years of age. Overall the rate for other than white infants was 2.4 times that for white infants.

Table 2.60 displays the variation in infant death rates according to the number of the mother's prenatal visits. The infant death rate for mothers who had no prenatal care was 84.3, over seventeen times as high as the low rate of 4.7 for mothers who had 10-14 prenatal visits. The rate associated with mothers who had 1-4 visits was 16.2 times the low rate, while the rate associated with mothers who had 5-9 visits was 4.2 times as high as the low rate. The infant death rate for mothers with 20 or more prenatal visits was 9.4 percent higher than the low rate, reflecting the likelihood that a high number of prenatal visits is connected with a problem pregnancy.

Mothers with fewer than ten prenatal visits had 24.9 percent of all live births but 61.2 percent of all infant deaths. Mothers who had ten or more prenatal visits had 72.8 percent of the live births and 30.1 percent of the infant deaths. The infant death rate for mothers who had fewer than ten prenatal visits was 28.9. This is 5.9 times the rate of 4.9 for mothers who had ten or more prenatal visits.

Table 2.57
Infant Deaths, Live Births, and Infant Death Rates by Race, Michigan Resident Infants Born in 1982

RACE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Races	1,625	137,950	11.8
White	1,071	113,868	9.4
Black	536	22,270	24.1
American Indian	8	488	16.4
Other Races	7	1,241	5.6
Unknown	3	83	*

Table 2.58
Hebdomadal Deaths[1] and Death Rates[2] by Race, Michigan Resident Infants Born in 1982

RACE	HEBDOMADAL DEATHS	HEBDOMADAL DEATH RATE
All Races	1,018	7.4
White	669	5.9
Black	337	15.1
American Indian	5	10.2
Other Races	5	4.0
Unknown	2	*

[1] Deaths to infants less than seven days old.
[2] Per 1,000 live births.

Table 2.59

Infant Deaths, Live Births, and Infant Death Rates by Age of Mother and Race[1] of Infant, Michigan Resident Infants Born in 1982

AGE OF MOTHER	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Ages	1,625	137,950	11.8	1,071	113,868	9.4	551	23,999	23.0
Under 15 Years	5	319	15.7	-	107	*	5	211	23.7
15-19 Years	308	17,344	17.8	170	12,129	14.0	138	5,206	26.5
20-24 Years	528	45,586	11.6	352	37,609	9.4	175	7,950	22.0
25-29 Years	488	45,995	10.6	344	39,762	8.7	143	6,206	23.0
30-39 Years	285	27,959	10.2	198	23,666	8.4	87	4,274	20.4
40 or More Years	10	740	13.5	7	589	11.9	3	151	*
Age Not Stated	1	7	*	-	6	*	-	1	*

[1] Race not stated included in total columns only.

Table 2.60
Infant Deaths, Live Births, and Infant Death Rates by Prenatal Visits and Race[1] of Infant, Michigan Resident Infants Born in 1982

NUMBER OF VISITS	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
Total	1,625	137,950	11.8	1,071	113,868	9.4	551	23,999	23.0
0	95	1,127	84.3	37	518	71.4	58	609	95.2
1-4	334	4,383	76.2	184	2,585	71.2	150	1,797	83.5
5-9	566	28,875	19.6	390	21,979	17.7	176	6,888	25.6
10-14	398	84,423	4.7	315	73,536	4.3	83	10,865	7.6
15-19	65	13,173	4.9	52	10,874	4.8	13	2,294	5.7
20 or Over	26	2,842	9.1	9	2,079	4.3	17	762	22.3
Unknown	141	3,127	45.1	84	2,297	36.6	54	784	68.9

[1] Race not stated included in total columns only.

The differential in mortality rates between other than white and white infants noted above is significantly altered when comparisons are made within the same range of prenatal visits. While the overall rate for other than white infants was 2.4 times that for white infants, for mothers who had 1-4 prenatal visits the rates for other than white infants were much closer to the rates for white infants (17.3 percent higher). For mothers with fewer than ten prenatal visits, the infant mortality rate for white infants was 24.4 and that for other than white infants 41.3. For mothers with ten or more prenatal visits, the rate for white infants was 4.3 and for other than white infants 8.1. The rate for other than white infants was , thus, 69.3 percent higher where the mother had fewer than ten prenatal visits and 88.4 percent higher where the mother had ten or more visits. Both of these racial differentials were less than the overall racial differential of 145 percent. This seemingly paradoxical result is explained by the differing distributions of the white and the other than white births. The overall infant mortality rate for each race is a weighted sum of the infant mortality rates for the different prenatal care categories. The weight for each prenatal care category is the ratio of the number of live births in that category to the total number of live births. Since a greater proportion of the other than white live births are to mothers in the categories with fewer prenatal visits, the higher infant mortality rates in the categories with fewer prenatal visits are more heavily weighted for the other than white population.

When deaths under one week are added to fetal deaths the total is called perinatal deaths. By placing a ceiling of six days for the infant component of perinatal deaths, most accidental and environmental causes of death are eliminated. In 1983, Michigan resident perinatal deaths numbered 1,971 and the perinatal death rate was 14.2. This rate was 15.0 in 1982 and 26.0 in 1970. As with infant death rates, perinatal death rates vary considerably with race, age of mother, and number of prenatal visits. Tables 2.61 and 2.62 show perinatal deaths and rates by age of mother, the number of the mother's prenatal visits, and the race of the fetus or infant for fetal deaths and live births occurring in 1982. The data for hebdomadal deaths are drawn from a merged file of birth and death data. As a result, perinatal deaths and rates are slightly understated. Table 2.61 makes clear the increased risk of death to fetuses and infants of mothers under 20 years or age 40 or greater. Minimum risk in 1982 was associated with mothers 25-29 years of age. Table 2.62 indicates that the risk of perinatal death is eighteen times as great for fetuses and infants whose mothers had no prenatal visits compared to those whose mothers had 10-14 visits. The risk associated with 5-9 prenatal visits is 4.9 times as great as for the lowest risk category (10-14 visits).

Table 2.61
Perinatal Deaths, Total Births, and Perinatal Death Rates by Age of Mother and Race[1] of Infant or Fetus, Births to Michigan Residents in 1982

AGE OF MOTHER	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total	1,971	138,903	14.2	1,398	114,597	12.2	567	24,219	23.4
Under 15 Years	3	319	*	-	107	*	3	211	*
15-19 Years	330	17,487	18.9	182	12,212	14.9	148	5,266	28.1
20-24 Years	627	45,876	13.7	462	37,845	12.2	163	8,003	20.4
25-29 Years	586	46,282	12.7	434	39,990	10.9	152	6,264	24.3
30-39 Years	396	28,172	14.1	300	23,833	12.6	96	4,320	22.2
40 or More Years	20	753	26.6	17	601	28.3	3	152	*
Age Not Stated	7	14	000	3	9	000	2	3	000

[1] Race not stated included in total columns only.

Table 2.62
Perinatal Deaths, Total Births, and Perinatal Death Rates by Prenatal Visits and Race[1] of Infant or Fetus, Births to Michigan Residents in 1982

NUMBER OF VISITS	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total	1,971	138,903	14.2	1,398	114,597	12.2	567	24,219	23.4
0	99	1,161	85.3	42	534	78.7	57	627	90.9
1-4	424	4,556	93.1	259	2,702	95.9	165	1,853	89.0
5-9	738	29,228	25.2	553	22,262	24.8	184	6,957	26.4
10-14	394	84,654	4.7	345	73,742	4.7	48	10,889	4.4
15-19	68	13,211	5.1	51	10,903	4.7	17	2,303	7.4
20 or Over	28	2,857	9.8	14	2,089	6.7	14	767	18.3
Unknown	220	3,236	000	134	2,365	000	82	823	000

[1] Race not stated included in total columns only.

The overall perinatal mortality rate for other than white fetuses and infants was nearly twice as high as for whites. The highest perinatal death rate for both groups was associated with mothers under age 20. The minimum risk was associated with mothers 25-29 years of age for white and with mothers 20-24 years of age for other than white fetuses and infants (Table 2.61).

For both white and other than white fetuses and infants the highest mortality rates were associated with mothers who received less than 5 prenatal visits. In each prenatal care category the rates were higher for other than white fetuses and infants, excepting 1-4 visits. The differentials by race were considerably less than the overall differential (Table 2.62) within each prenatal care category. Of note is that for intervals from 1 through 14 visits the rates were equivalent.

The median birth weight of infants born in 1982 and dying prior to 1 year of age was 1,219 grams (Table 2.63). The median birth weight of all Michigan resident live births in 1982 was 3,402 grams. For all maternal age groups, the median birth weight for infant deaths was well below the overall median birth weight for liveborn infants.

Infant death rates by race, birth weight and age at death are displayed in Table 2.64 for infants born in 1982. While the overall infant death rate for other than white infants was more than double that of white infants, the rates for white and other than white infants were quite similar for infants born weighing 1500 grams or less. The rate for white infants weighing 1501-2500 grams exceeded by 13.5 percent the comparable rate for other than white infants. For infants weighing 2,501 grams or more the rate for other than white infants exceeded by 97.1 percent that for white infants. A large part of the difference between infant death rates for white and other than white infants is due to the fact that a greater proportion of the other than white infants were born at weights below 2,501 grams (13.9 percent for other than white infants compared to 5.6 percent for white infants).

The differentials in death rates by race for deaths under 28 days (neonatal deaths) and from 28-364 days (postneonatal deaths) were similar to that for all infant deaths. For both neonatal and postneonatal deaths the differentials in death rates by race in the different birth weight categories were less than the overall differential. The neonatal rate for white infants weighing 1501-2500 grams was 1.5 times the comparable rate for other than white infants while the postneonatal death rate for other than white infants in this birth weight category exceeded the comparable rate for white infants by 32.4 percent. For infants weighing 2501 grams or more at birth, the rates were

Table 2.63
Infant Deaths by Birth Weight and Mother's Age, Michigan Resident Infants Born in 1982

BIRTH WEIGHT IN GRAMS	TOTAL	MOTHER'S AGE						
		UNDER 15	15-19	20-24	25-29	30-39	40 OR MORE	NOT STATED
Total	1,625	5	308	528	488	285	10	1
500 or Less	262	1	52	88	76	42	3	-
501-1,000	443	2	87	158	123	71	2	-
1,001-1,500	162	1	39	40	51	29	2	-
1,501-2,000	105	-	13	26	41	25	-	-
2,001-2,500	126	-	24	33	41	27	1	-
2,501-3,000	188	1	39	66	49	32	1	-
3,001-3,500	151	-	28	57	47	19	-	-
3,501-4,000	111	-	17	34	33	27	-	-
4,001-4,500	30	-	2	9	10	9	-	-
4,501 and Over	20	-	2	7	8	3	-	-
Not Stated	27	-	5	10	9	1	1	1
Median Weight in Grams	1,219	*	1,106	1,130	1,389	1,474	*	*

Table 2.64
Live Births by Birth Weight and Race of Infant and Infant Deaths and Infant Death Rates by Birth Weight, Age at Death, and Race of Infant, Michigan Resident Infants Born in 1982

BIRTH WEIGHT	RACE OF INFANT	LIVE BIRTHS	AGE AT DEATH					
			UNDER 1 YEAR		UNDER 28 DAYS		28-364 DAYS	
			NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
Total	All Races	137,950	1,625	11.8	1,177	8.5	448	3.2
	White	113,868	1,071	9.4	775	6.8	296	2.6
	All Other'	23,999	551	23.0	399	16.6	152	6.3
Less Than 1,501 Grams	All Races	1,835	867	472.5	793	432.2	74	40.3
	White	1,141	526	461.0	484	424.2	42	36.8
	All Other'	691	339	490.6	307	444.3	32	46.3
1,501-2,500 Grams	All Races	7,737	231	29.9	141	18.2	90	11.6
	White	5,216	162	31.1	107	20.5	55	10.5
	All Other'	2,519	69	27.4	34	13.5	35	13.9
2,501 Grams or Greater	All Races	128,309	500	3.9	218	1.7	282	2.2
	White	107,453	360	3.4	162	1.5	198	1.8
	All Other'	20,782	140	6.7	56	2.7	84	4.0
Unknown Birth Weight	All Races	69	27	391.3	25	362.3	2	*
	White	58	23	396.6	22	379.3	1	*
	All Other'	7	3	*	2	*	1	*

'Race not stated included in total rows only.

higher for other than white infants by 80 percent and 122 percent, respectively, for neonatal and postneonatal deaths.

COMMUNICABLE DISEASE DEATHS

Although comprising a smaller proportion of deaths than they have in the past, communicable disease deaths continue to be a public health concern. In 1983, deaths from all infectious and parasitic diseases numbered 757. As can be observed from Table 2.65, two thirds of these deaths were caused by septicemia (512 deaths). Tuberculosis, and mycoses caused 39 and 31 deaths, respectively. When deaths attributed to late effects of tuberculosis are included, the number of deaths from tuberculosis rises to 51.

The distribution of infectious and parasitic disease deaths by age, race, and sex for 1983 is given in Table 2.66, and the corresponding death rates are shown in Table 2.67. Note that deaths to other than white persons accounted for 24.7 percent of all infectious and parasitic disease deaths but only 13.7 percent of deaths from all causes. The death rates were highest for persons aged 65 years and over (52.7 deaths per 100,000 population) and for infants under 1 year (13.1). Rates for other than white males were highest, followed by those for other than white females.

Deaths due to such diseases as diptheria, scarlet fever, streptococcal sore throat, small pox, typhoid fever, measles, poliomyelitus and others have been virtually eliminated not only in Michigan, but across the nation. Table 4.7 illustrates trends in deaths from the major communicable diseases.

Table 2.65
Deaths From Selected Infectious and Parasitic Diseases, Michigan Residents, 1983

ICD LIST[1] NUMBER	CAUSE OF DEATH	FREQUENCY
038	Septicemia	512
010-018	Tuberculosis	39
110-118	Mycoses	31
070	Viral Hepatitis	29
135	Sarcoidosis	13
137	Late Effects of Tuberculosis	12
136.3	Pneumocystosis	10
054	Herpes Simplex	9
040.0	Gas Gangrene	8
036	Meningococcal Infection	7
053	Herpes Zoster	6
046	Slow Virus Infection of Central Nervous System	5
052	Chickenpox	2
Residual 000-139	All Other Infectious and Parasitic Diseases	74
000-139	Total	757

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

Table 2.66
Deaths Due to Infectious and Parasitic Diseases by Age, Race, and Sex, Michigan Residents, 1983

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	757	291	94	279	93
Under 1 Year	18	6	4	6	2
1-19 Years	22	7	5	5	5
20-44 Years	58	21	12	15	10
45-64 Years	162	69	27	47	19
65 or Over	497	188	46	206	57

Table 2.67
Infectious and Parasitic Diseases Death Rates by Age, Race, and Sex, Michigan Residents, 1983

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	8.3	7.6	14.6	7.0	13.0
Under 1 Year	13.1	10.5	*	10.9	*
1-19 Years	0.8	0.6	2.0	0.5	2.0
20-44 Years	1.6	1.4	5.0	1.0	3.6
45-64 Years	9.2	9.3	27.9	5.8	16.5
65 or Over	52.7	55.3	116.4	40.5	104.0

INJURY AT WORK

There were 159 deaths reported as resulting from injuries at work in 1983, 23 fewer than in 1982. These include all cases in which the underlying cause of death was external and the injury was reported to have occurred at work, whether or not the injury was work-related. Table 2.68 gives the frequency of deaths due to injuries at work by place of occurrence. The most common site was public buildings with 42 deaths. Injuries in industrial places and premises caused 39 deaths followed by injuries on streets and highways with 35 deaths. There were 18 deaths from injuries taking place on farms.

The most frequent causes of death associated with injuries at work were accidents caused by homicide and legal intervention with 36 deaths or 22.6 percent of all such deaths (Table 2.69). The second most common cause was motor vehicle traffic accidents, accounting for 31 deaths and 19.5 percent of the total. Accidents caused by machinery and accidental falls accounted for 28 and 16 deaths, respectively.

Table 2.68
Deaths Due to Injury at Work by Place of Injury, Michigan Residents, 1983

PLACE	NUMBER OF DEATHS
Public Building	42
Industrial Place and Premises	39
Street and Highway	35
Farm	18
Home	8
Place for Recreation and Sport	3
Resident Institution	3
Mine and Quarry	1
Other Specified Places	10
Place Not Specified	-
Total	159

Table 2.69
Deaths Due to Injury at Work by Cause of Death, Michigan Residents, 1983

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
E960-E978	Homicide and Legal Intervention . . .	36	22.6
E810-E819	Motor Vehicle Traffic Accidents . . .	31	19.5
E919	Accidents Caused by Machinery	28	17.6
E880-E888	Accidental Falls	16	10.1
E950-E959	Suicide	9	5.7
E867-E869	Accidental Poisoning Caused by Gases and Vapors	6	3.8
E925	Accidents Caused by Electric Current	5	3.1
E916	Struck Accidentally by Falling Object	4	2.5
E890-E899	Accident Caused by Fire and Flames .	4	2.5
E820-E825	Motor Vehicle Nontraffic Accidents .	3	1.9
E840-E845	Air and Space Transport Accidents . .	3	1.9
E923	Accident Caused by Explosive Material	2	1.3
E913	Accidental Mechanical Suffocation . .	2	1.3
E830-E838	Water Transport Accidents	1	0.6
Residual E800-E949	All Other Accidents	9	5.7
	Total	159	100.0

[1] Detailed List of the 9th Revision of the _International Classification of Diseases_, WHO.

LIFE EXPECTANCY

The life expectancy of a Michigan resident at birth is 73.8 years, based on 1983 mortality and population data. Females demonstrated a significantly greater longevity than males. In 1983 the life expectancy at birth was 70.5 years for males and 77.1 years for females. This results from the higher mortality rates of males at all ages.

Life expectancies by sex in selected years for Michigan and United States residents are presented in Table 2.70. It can be seen that longevity has increased greatly in Michigan since 1901, by 17.0 years for males and by 22.1 years for females. Females born in Michigan in 1901 could expect to live 1.7 years longer than their male counterparts. By 1950 the differential in life expectancy between the sexes was 5.5 years. This disparity increased to 7.6 years by 1971, remained constant through 1973, and by 1983 had declined to 6.6 years. Between 1973 and 1983 life expectancy for males increased by 3.1 years while for females the increase was 2.1 years.

The life expectancy of Michigan residents was well above that for the nation in 1901, but this differential had virtually disappeared by 1950. In 1980 the life expectancy of males in Michigan was equal to that for males nationwide, at 70.0 years, while longevity for females residing in this state was 0.6 years below the average for the country. Note that females have consistently demonstrated greater longevity than males both in Michigan and in the United States.

White persons displayed a life expectancy 5.7 years greater than other than white persons in 1983. The life expectancy of white males was 6.6 years greater than other than white males in 1983 compared to a differential of 5.8 years in 1950 (Table 2.71). In 1970 the differential was 7.2 years, due in part to an actual reduction in life expectancy for other than white males between 1960 and 1970. Since 1970 life expectancy for other than white males has increased 6.2 percent, from 61.0 to 64.8 years. This is a reflection of the decline in mortality rates for several leading causes of death for this group prior to 1981. The differential by race for female expectancies has declined over this period. In 1950, Michigan resident white females had an average longevity 8.5 years greater than females of all other races. This disparity declined to 4.9 years in 1983.

The expected number of years of life remaining are presented graphically by age, race, and sex in Figure 2.51. The number of years of life remaining for females is greater than that for males throughout life. Other than white persons display slightly greater life expectancies in the

Table 2.70
Life Expectancy at Birth by Sex, Michigan and United States Residents, Selected Years, 1901-1983

UNITED STATES		YEAR	MICHIGAN	
MALE	FEMALE		MALE	FEMALE
47.6	50.6	1901	53.4	55.1
48.4	51.8	1910	53.9	56.2
53.6	54.6	1920	55.1[1]	56.0[1]
58.1	61.6	1930	59.8[1]	62.8[1]
60.8	65.2	1940	63.4[1]	67.4[1]
65.6	71.1	1950	65.7	71.2
66.6	73.1	1960	67.1	73.3
67.1	74.7	1970	67.2	74.6
67.4	75.0	1971	67.3	74.9
67.4	75.1	1972	67.3	74.9
67.6	75.3	1973	67.4	75.0
68.1	75.8	1974	68.0	75.3
68.8	76.6	1975	68.5	75.7
69.1	76.8	1976	69.0	75.9
69.5	77.2	1977	69.3	76.3
69.6	77.3	1978	69.6	76.4
70.0	77.8	1979	70.0	76.8
70.0	77.5	1980	70.0	76.9
70.4	77.9	1981	70.2	76.9
70.8[2]	78.2[2]	1982	70.4	77.2
71.0[2]	78.3[2]	1983	70.5	77.1

[1] Michigan data for years 1920, 1930, and 1940 are for white persons only.

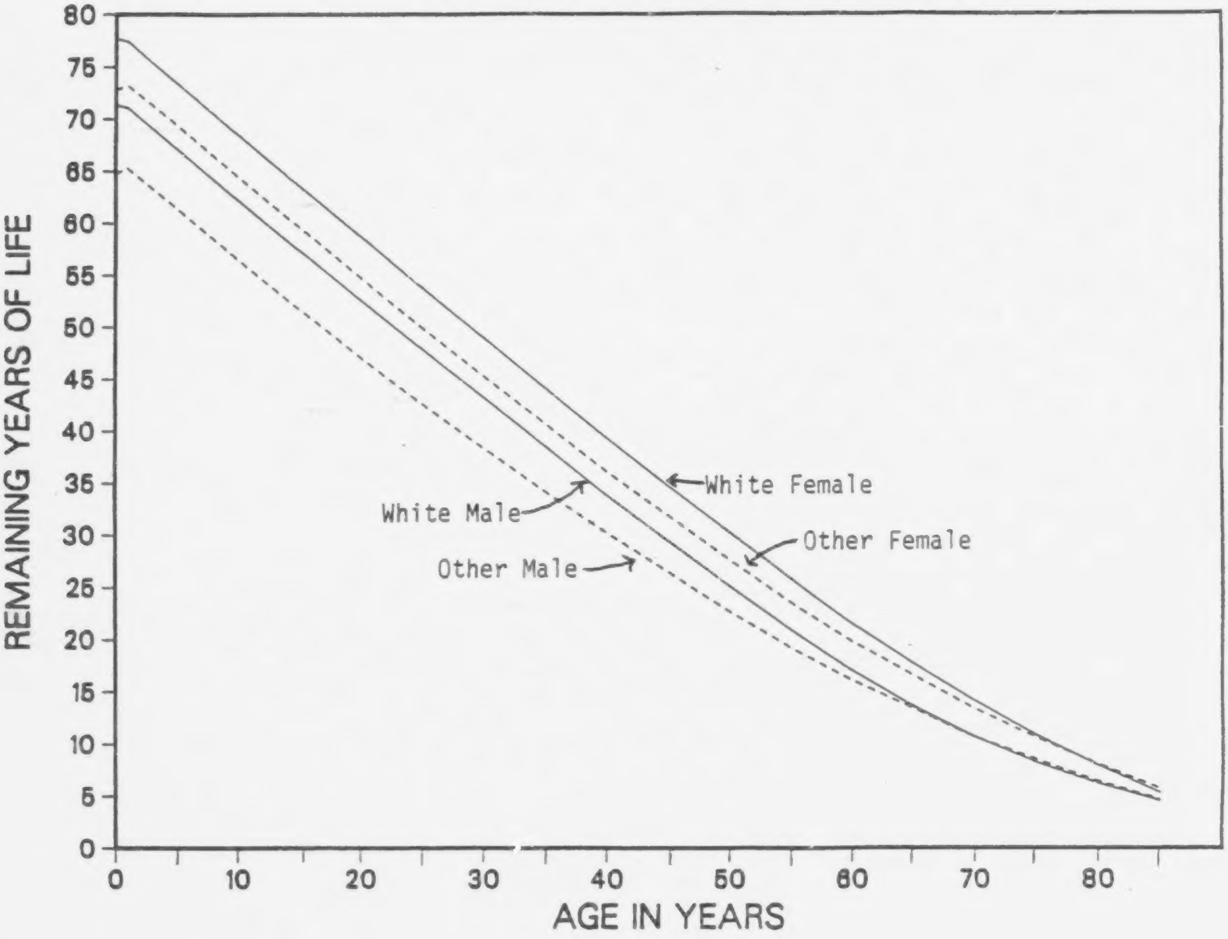
[2] Estimate based on a 10 percent sample of deaths.

Table 2.71
Life Expectancy at Birth by Sex and Race, Michigan Residents, Selected Years 1950-1983[1]

POPULATION SUBGROUP	YEAR						
	1950	1960	1970	1980	1981	1982	1983
Total Population	68.3	70.0	70.8	73.4	73.5	73.8	73.8
Total Male	65.7	67.1	67.2	70.0	70.2	70.4	70.5
Total Female	71.2	73.3	74.6	76.9	76.9	77.2	77.1
Total White	68.8	70.5	71.6	74.3	74.3	74.6	74.6
White Male	66.2	67.5	68.2	71.0	71.0	71.3	71.4
White Female	71.9	74.0	75.3	77.6	77.6	77.9	77.8
Total All Other	61.8	65.6	65.0	68.5	68.7	69.0	68.9
All Other Male	60.4	63.6	61.0	64.3	64.7	64.9	64.8
All Other Female	63.4	67.7	69.4	72.7	72.7	73.1	72.9

[1] Data for 1980-1982 have been revised.

FIGURE 2.51
REMAINING YEARS OF LIFE BY AGE, SEX, AND RACE, MICHIGAN RESIDENTS, 1983



older age intervals than their white counterparts. The average number of years remaining for other than white females surpasses that of white females between ages 80 and 85. Other than white males display a greater expectation than that of white males at ages 70 and over.

PLACE OF OCCURRENCE

There were 2,285 Michigan resident deaths in 1983 that occurred outside the state. This represents 3.0 percent of all resident deaths. 527 Michigan resident deaths occurred in the state of Florida in 1983. This is 23.1 percent of all resident out-of-state deaths, more than in any other area. The border areas of Indiana, Ohio, Wisconsin, and Canada accounted for 43.9 percent of all resident deaths outside Michigan. In addition to the above-mentioned areas, over 50 Michigan resident deaths also occurred in each of the following states: Illinois, California, Texas, and Arizona. Michigan resident deaths occurred in 49 of the 50 states in 1983 and the District of Columbia (Table 2.72).

Of the 1,089 non-residents that died in Michigan in 1983, 45.1 percent were from the border areas, 19.2 percent were Floridians and 8.9 percent were from Illinois. Overall, non-residents who died in Michigan represented 43 states and several foreign countries.

Table 2.72
Michigan Resident Deaths Occurring Outside Michigan by Place of Occurrence and Deaths Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1983

GEOGRAPHIC AREA	DEATHS OF RESIDENTS OCCURRING OUTSIDE MICHIGAN		DEATHS OF NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	2,285	100.0	1,089	100.0
Florida	527	23.1	209	19.2
Ohio	448	19.6	186	17.1
Indiana	298	13.0	92	8.4
Wisconsin	205	9.0	177	16.3
Illinois	81	3.5	97	8.9
California	65	2.8	29	2.7
Texas	74	3.2	19	1.7
Arizona	73	3.2	18	1.7
Canada	52	2.3	36	3.3
Minnesota	49	2.1	9	0.8
Tennessee	44	1.9	16	1.5
Kentucky	36	1.6	17	1.6
Other Areas	333	14.6	184	16.9

MARRIAGE & DIVORCE

SECTION III

MARRIAGE AND DIVORCE: AN OVERVIEW 1983

TOTAL MARRIAGES	78,910
TOTAL DIVORCES AND ANNULMENTS	37,991
MARRIAGE RATE[1]	17.2
DIVORCE RATE[1]	8.3
MEDIAN AGE OF THE BRIDE	24
MEDIAN AGE OF THE GROOM	26

[1] Number of persons married or divorced per 1,000 population.

MARRIAGES AND DIVORCES

The number of marriages and divorces occurring in Michigan has increased considerably since 1900. While the frequency of marriage has generally followed the growth of Michigan's population, the rate of persons dissolving their marriages has increased nearly fourfold since 1900. The smallest number of marriages in the years 1900 to 1983 was 23,295 in 1900, while the largest number was 94,486 in 1973. After steep declines in the number of marriages in 1974 and 1975 and a smaller decline in 1976, the number of marriages increased during each of the following three years. In 1980 through 1983 the number of marriages declined. The number of marriages recorded in 1983 was 78,910, a decrease of 4.5 percent from the 1982 figure. The number of divorces and annulments has increased from a low of 2,435 in 1900 to a high of 45,047 in 1980. In 1983 the number of divorces and annulments was 37,991. This represents a decrease of 4.4 percent from the figure for 1982.

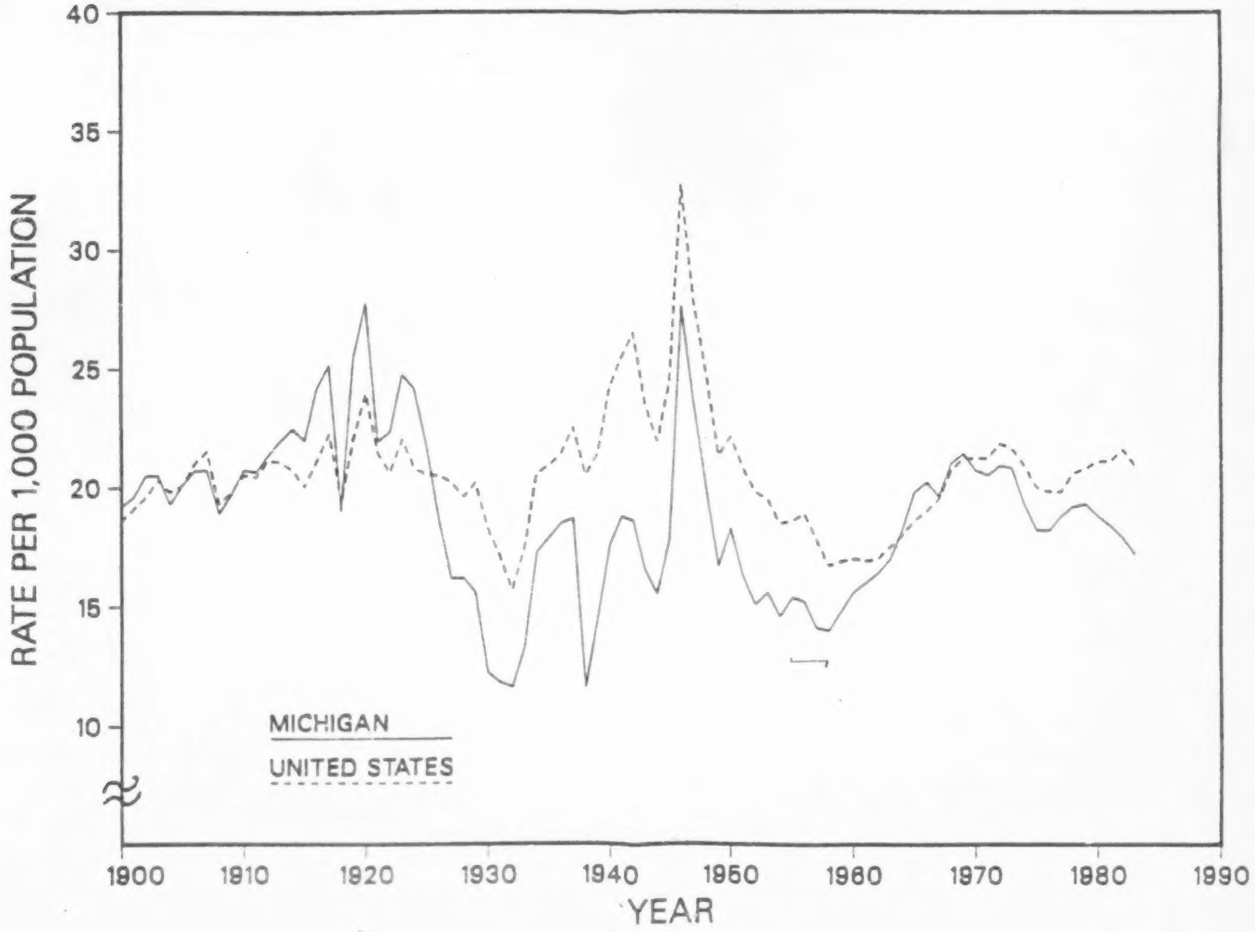
MARRIAGES

Since 1900 there have been noticeable changes in the marriage rates both nationally and in Michigan (Figure 3.1). The marriage rates observed for the state have generally followed the pattern of rising and falling rates observed nationally. Strong historic shifts in rates have been related most notably to the factors of war and the economy. The highest rates observed during this century were for the years immediately following the end of the two World Wars (27.7 in 1919 and 27.6 in 1946). The lowest rates occurred during the Great Depression of the 1930's.

The number of persons married each year per 1,000 population was higher in Michigan than in the country for 19 of the 26 years from 1900 through 1925. Since 1926, Michigan's marriage rate has been lower than that of the nation, excepting only the years 1964 through 1969. The gap between the marriage rate for Michigan and that for the nation has increased in recent years. In 1977 the U.S. rate (including nonlicensed marriages registered in California) was 8.5 percent above that of Michigan. By 1980, this percent increased to 13.3 and in 1983 the provisional rate for the nation was 21.5 percent above Michigan's rate.

The marriage rate for Michigan in 1983 was 17.2, 3.9 percent lower than the 1982 rate of 17.9 (Table 3.1). The provisional rate for the nation in 1983 was 20.9, below the 1982 rate of 21.6 by 3.2 percent.

FIGURE 3.1
MARRIAGE RATES, MICHIGAN AND UNITED STATES OCCURRENCES, 1900-1983[1]



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[1] United States rates for 1982 and 1983 are provisional.

Table 3.1
Marriages and Marriage Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1983

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,274,476	23.9	1920	50,805	27.7
1,126,856	18.3	1930	29,482	12.2
1,595,879	24.2	1940	46,342	17.6
1,667,231	22.1	1950	58,180	18.3
1,523,000	17.0	1960	61,090	15.6
1,548,000	16.9	1961	63,320	16.0
1,577,000	17.0	1962	65,002	16.4
1,654,000	17.5	1963	68,160	17.0
1,725,000	18.0	1964	73,911	18.2
1,800,000	18.6	1965	81,247	19.8
1,857,000	19.0	1966	83,903	20.2
1,927,000	19.5	1967	84,363	19.6
2,069,000	20.7	1968	90,984	21.0
2,145,000	21.2	1969	93,392	21.4
2,158,802	21.2	1970	91,933	20.7
2,190,481	21.2	1971	92,134	20.5
2,282,154	21.8	1972	94,447	20.9
2,284,108	21.6	1973	94,486	20.8
2,229,667	20.9	1974	88,023	19.3
2,152,662	20.0	1975	82,856	18.2
2,154,807	19.8	1976	82,753	18.2
2,178,367	19.8	1977	86,088	18.8
2,282,272	20.6	1978[2]	88,333	19.2
2,331,337	20.8	1979	89,450	19.3
2,390,252	21.1	1980	86,898	18.8
2,422,145	21.1	1981	85,252	18.4
2,495,000Pr.	21.6Pr.	1982	82,633	17.9
2,444,000Pr.	20.9Pr.	1983	78,910	17.2

[1] Number of persons married per 1,000 population.

[2] Beginning with 1978, marriage data for the United States include nonlicensed marriages registered in California. If nonlicensed marriages were included in the 1977 total, the marriage rate would increase from 19.8 to 20.1.

RESIDENCE OF COUPLES MARRYING IN MICHIGAN

When presenting statistics of births, deaths and fetal deaths it is possible to provide total resident figures due to an interstate agreement for exchange of nonresident event information. Thus, should a Michigan resident give birth in some other state, the state will forward the information to Michigan. No such agreement exists for marriages. This is an important consideration when analyzing marriage statistics. The marriage data presented are drawn from all marriages performed in the state regardless of the couple's residence.

Table 3.2 indicates that, in general, most of the couples marrying in Michigan are residents of the state. For marriages occurring in Michigan in 1983 96.2 percent of the brides were residents of Michigan, while 92.7 percent of the grooms were residents of the state. These figures are comparable to those for marriages occurring in Michigan in 1973. Over the decade the proportion of marriages where both the bride and groom are not residents has declined slightly. These data indicate that the general characteristics of marriages occurring in Michigan should be representative of marriage patterns for Michigan residents.

There were a total of 3,012 non-resident brides married in Michigan in 1983. The figure for grooms is nearly double that of brides, numbering 5,805. Table 3.3 shows the most frequent residences of non-resident brides and grooms married in Michigan. The nearby states of Illinois, Indiana, Ohio and Wisconsin are the states of residence for 30 percent of all non-resident grooms and 34 percent of non-resident brides.

MONTH OF MARRIAGE

The number of marriages occurring in Michigan varies with the seasons. The most popular month for marriages in 1983 was August, with 9,720 marriage ceremonies being performed during this month. June, July and September were also popular choices, with 12.0, 11.4,and 10.2 percent of all marriages being performed in those months respectively. Fewer marriages occurred during the winter months. The lowest figure was for January, with about one third the number which occurred in August (Table 3.4)

AGE AT MARRIAGE

Examination of the data in Table 3.5 reveals that females generally marry at a younger age than do males. The number of females who marry before the age of 20 is over two and a half times the corresponding frequency for males.

Table 3.2
Marriages by Residence Status of Bride and Groom, Michigan Occurrences, 1973 and 1983

RESIDENCE STATUS	1973		1983	
	NUMBER	PERCENT	NUMBER	PERCENT
Both Bride and Groom Residents . . .	87,616	92.7	72,490	91.9
Bride Resident, Groom Non-Resident	3,427	3.6	3,405	4.3
Groom Resident, Bride Non-Resident	885	0.9	615	0.8
Both Bride and Groom Non-Resident	2,557	2.7	2,397	3.0
Residence Status, Not Stated . . .	1	0.0	3	0.0
Total	94,486	100.0	78,910	100.0

Table 3.3
Place of Residence of Non-Resident Brides and Grooms, Marriages Occurring in Michigan, 1983

GEOGRAPHIC AREA	NON-RESIDENT BRIDE	NON-RESIDENT GROOM
Arizona	73	115
California	286	495
Colorado	152	226
Florida	212	448
Georgia	45	113
Illinois	291	518
Indiana	252	411
Minnesota	51	104
New York	104	266
Ohio	272	519
Texas	326	557
Virginia	58	141
Wisconsin	203	308
Other U.S. Places	603	1,301
Foreign Countries	84	283
Total	3,012	5,805

Table 3.4
Marriages by Month, Michigan Occurrences, 1983

MONTH	NUMBER	PERCENT
January	3,309	4.2
February	3,754	4.8
March	4,076	5.2
April	5,844	7.4
May	7,683	9.7
June	9,485	12.0
July	9,035	11.4
August	9,720	12.3
September	8,020	10.2
October	7,893	10.0
November	4,814	6.1
December	5,277	6.7
January - December	78,910	100.0

Table 3.5
Number of Marriages and Marriage Rates[1] by Age and Sex, Michigan Occurrences, 1973 and 1983

AGE IN YEARS	MALES			FEMALES		
	NUMBER OF MARRIAGES 1983	RATE 1983	RATE 1973	NUMBER OF MARRIAGES 1983	RATE 1983	RATE 1973
Under 20[2]	4,808	10.7	34.9	12,783	29.2	74.8
20-24	26,542	56.7	111.5	29,580	63.2	86.3
25-34	30,349	37.9	37.6	24,600	30.0	24.6
35-44	9,779	19.7	14.1	7,290	14.2	10.3
45 or Over	7,421	6.1	6.7	4,652	3.1	4.3
Not Stated	11	000	000	5	000	000
Total	78,910	17.7	21.3	78,910	16.8	20.4
Median Age at Last Birthday	26	000	000	24	000	000

[1] Number of persons married per 1,000 population.
[2] 15-19 population used to obtain rate.

Between ages 20 and 24 the numbers of brides and of grooms are similar. Among persons 25 and over, males marry more frequently than females. In 1983 the median age of brides marrying in Michigan was 24 years, while the 50th percentile for grooms was 26.

Since 1973, there have been significant declines in the marriage rate for persons of both sexes under the age of 25 years. The largest decline observed is for males under the age of 20 years for whom the marriage rate has dipped 69.3 percent. The comparable decline for females was 61.0 percent. The marriage rate declined by 49.1 percent and 26.8 percent respectively for males and females between the ages of 20 and 24. For persons between the ages of 25 and 44 the rates of marriage have increased since 1973 for both sexes, while rates for persons 45 and over have dropped.

The distribution of marriages by the age of bride and groom is shown in Table 3.6.

REMARRIAGES

Between 1973 and 1983 the percent of all marriages that were remarriages increased from 25.7 to 32.4 for brides and from 27.2 to 34.2 for grooms (Tables 3.7 and 3.8). The proportion of all marriages which are remarriages is displayed graphically in Figure 3.2 for the period 1960-1983. Between 1960 and 1965, the proportion of remarriages dropped. Since 1965, this proportion has increased. The increase in the period 1972 through 1975 was especially marked for both sexes.

The frequency of remarriages among females increased by 5.2 percent between 1973 and 1983, while the number of brides who had been married at least three times previously increased by 10.6 percent. The increases for males were similar. Total remarriages increased by 4.9 percent and fourth or higher order marriages increased in frequency by 44.1 percent between 1973 and 1983 (Tables 3.9 and 3.10).

As remarriages can only occur when a prior marriage has been terminated by a divorce, an annulment or the death of a spouse, it is apparent that persons remarrying will be generally older. Tables 3.9 and 3.10 demonstrate that the order of marriage has a strong positive relationship with the age of both brides and grooms. Note, however, the downward shift between 1973 and 1983 in the age distribution for third and higher order marriages. The median age at marriage for third marriages declined by two years for brides and grooms during this period, while for fourth and higher order marriages the median age declined by two years for brides.

Table 3.6
Marriages by Age of Bride and Age of Groom, Michigan Occurrences, 1983

AGE OF GROOM	AGE OF BRIDE													
	TOTAL	UNDER 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 AND OVER	NOT STATED
Total	78,910	12,783	29,580	16,388	8,212	4,578	2,712	1,613	1,033	655	609	388	354	5
Under 20	4,808	3,788	882	98	22	13	5	-	-	-	-	-	-	-
20-24	26,542	7,360	16,386	2,289	394	78	25	6	1	-	-	-	-	3
25-29	20,182	1,280	9,115	7,529	1,760	392	79	20	1	4	-	-	-	2
30-34	10,167	241	2,263	3,937	2,654	812	212	37	8	3	-	-	-	-
35-39	6,144	78	631	1,673	1,919	1,332	378	109	17	6	1	-	-	-
40-44	3,635	17	183	554	893	992	709	212	51	16	6	2	-	-
45-49	2,340	6	68	180	325	556	626	434	112	19	12	1	1	-
50-54	1,624	5	29	77	139	236	395	362	271	85	20	4	1	-
55-59	1,280	4	14	29	70	110	190	255	282	203	91	24	8	-
60-64	851	3	4	9	24	37	61	122	176	175	183	44	13	-
65-69	625	-	1	5	8	14	19	38	78	97	175	141	49	-
70 and Over	701	1	1	3	4	4	13	18	36	46	121	172	282	-
Not Stated	11	-	3	5	-	2	-	-	-	1	-	-	-	-

Table 3.7
Age at First Marriage and Remarriage: Bride, Michigan Occurrences, 1973 and 1983

AGES	1973				1983			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20 . .	33,153	32,658	443	52	12,783	12,657	112	14
Percent .	35.1	46.6	1.8	70.3	16.2	23.8	0.4	42.4
20-24	34,701	30,249	4,441	11	29,580	26,934	2,632	14
Percent . .	36.7	43.2	18.2	14.9	37.5	50.5	10.3	42.4
25-29	10,379	5,036	5,341	2	16,388	10,331	6,054	3
Percent . .	11.0	7.2	21.9	2.7	20.8	19.4	23.7	9.1
30-34	4,951	1,108	3,841	2	8,212	2,428	5,783	1
Percent . .	5.2	1.6	15.8	2.7	10.4	4.6	22.6	3.0
35-44	5,377	623	4,751	3	7,290	725	6,565	-
Percent . .	5.7	0.9	19.5	4.1	9.2	1.4	25.6	-
45 or Over .	5,922	401	5,517	4	4,652	204	4,447	1
Percent . .	6.3	0.6	22.7	5.4	5.9	0.4	17.4	3.0
Not Stated .	3	1	2	-	5	3	2	-
Percent . .	0.0	0.0	0.0	-	0.0	0.0	0.0	-
Total	94,486	70,076	24,336	74	78,910	53,282	25,595	33
Percent . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	21	20	32	17	24	22	33	20

Table 3.8
Age at First Marriage and Remarriage: Groom, Michigan Occurrences, 1973 and 1983

AGES	1973				1983			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20	15,564	15,468	50	46	4,808	4,794	9	5
Percent	16.5	22.5	0.2	60.5	6.1	9.2	0.0	23.8
20-24	40,978	38,436	2,525	17	26,542	25,467	1,066	9
Percent	43.4	56.0	9.8	22.4	33.6	49.1	3.9	42.9
25-29	16,027	10,596	5,426	5	20,182	15,544	4,636	2
Percent	17.0	15.4	21.1	6.6	25.6	30.0	17.2	9.5
30-34	6,768	2,289	4,477	2	10,167	4,286	5,879	2
Percent	7.2	3.3	17.4	2.6	12.9	8.3	21.8	9.5
35-44	7,026	1,167	5,858	1	9,779	1,395	8,383	1
Percent	7.4	1.7	22.8	1.3	12.4	2.7	31.1	4.8
45 or Over	8,123	726	7,392	5	7,421	398	7,021	2
Percent	8.6	1.1	28.7	6.6	9.4	0.8	26.0	9.5
Not Stated	-	-	-	-	11	7	4	-
Percent	-	-	-	-	0.0	0.0	0.0	-
Total	94,486	68,682	25,728	76	78,910	51,891	26,998	21
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	23	22	35	19	26	24	36	*

FIGURE 3.2
PERCENT OF ALL MARRIAGES THAT ARE REMARRIAGES, MICHIGAN OCCURRENCES, 1960-1983

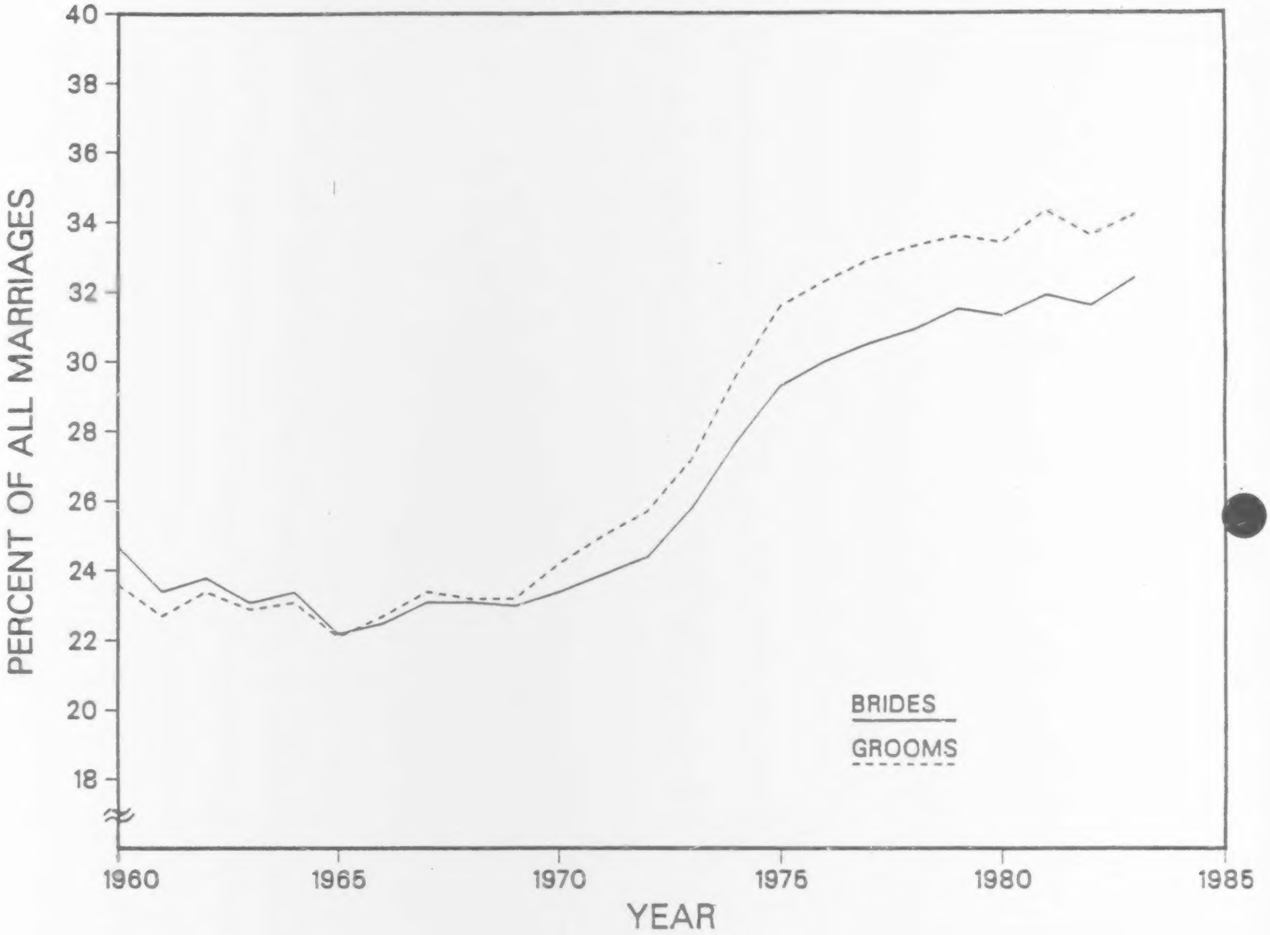

Table 3.9
Remarriages of Brides by Age and Order of Marriage, Michigan Occurrences, 1973 and 1983

AGES	1973				1983			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages . . .	94,486	19,399	4,080	857	78,910	19,989	4,511	1,095
Under 20 . . .	33,153	437	6	-	12,783	108	4	-
20-24	34,701	4,212	220	9	29,580	2,538	92	2
25-29	10,379	4,666	599	76	16,388	5,310	662	82
30-34	4,951	3,003	724	114	8,212	4,563	1,051	169
35-39	3,033	1,903	588	145	4,578	2,857	907	256
40-44	2,344	1,463	513	139	2,712	1,643	679	223
45 or Over . .	5,922	3,714	1,429	374	4,652	2,970	1,114	363
Not Stated . .	3	1	1	-	5	-	2	-
Median Age at Last Birthday	21	30	39	42	24	32	37	40

Table 3.10
Remarriages of Grooms by Age and Order of Marriage, Michigan Occurrences, 1973 and 1983

AGES	1973				1983			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages . . .	94,486	20,889	4,061	778	78,910	20,915	4,962	1,121
Under 20 . . .	15,564	50	-	-	4,808	9	-	-
20-24	40,978	2,460	62	3	26,542	1,046	20	-
25-29	16,027	4,954	445	27	20,182	4,300	320	16
30-34	6,768	3,779	625	73	10,167	4,920	871	88
35-39	3,972	2,492	617	113	6,144	3,786	1,076	207
40-44	3,054	1,901	605	130	3,635	2,249	829	236
45 or Over . .	8,123	5,253	1,707	432	7,421	4,601	1,846	574
Not Stated . .	-	-	-	-	11	4	-	-
Median Age at Last Birthday	23	33	42	45	26	35	40	45

Changes in the frequency of remarriages have varied substantially in different age groups. Among persons under age 25 of both sexes the number of remarriages declined, with the largest relative declines occurring among those under age 20. The number of brides between ages 25 and 29 who had previously been married increased by 13.4 percent between 1973 and 1983, while that of grooms declined. The largest relative increase in numbers of remarriages for females occurred in the age group 30-34 years (50.2 percent) and for males occurred in the age group 35-44 (43.1 percent). For females and males 45 and over the number of remarriages declined.

The most frequent age interval for remarriage among females and males was 45 years of age or older in 1973 and 35-44 years of age in 1983 (Table 3.7 and 3.8).

FIRST MARRIAGES

First marriages are an interesting component of all marriages in that they constitute an event that can never be duplicated. The frequency of first marriages can not be directly affected by rates of divorce or deaths to married persons and as such reflects the propensity of the population as a whole to enter into marital agreements.

There has been a general decline in both the number and rate of first marriages between 1973 and 1983. The number of first marriages dropped 24.0 percent for women and 24.4 percent for men. The rate of first marriages dropped by 25.2 percent for both women and men. This downward trend in the number and rate of first marriages has not been consistent, however. For men and women, the number and rate of first marriages remained fairly constant in 1971 and 1973, dropped between 1973 and 1976, increased between 1976 and 1979, and fell in the years 1980 through 1983 (Tables 3.11, 3.12, 3.13 and 3.14).

Changes in the frequency of first marriages have varied in different age groups. The greatest decline in first marriages occurred in the under 20 age group for both brides and grooms, and the decline has been consistent over the period 1973-1983. The number of first marriages in the under 20 age group dropped by 61.2 percent for brides and by 69.0 percent for grooms between 1973 and 1983 while the corresponding rate for first marriages dropped 60.8 percent for brides and 69.2 percent for grooms. The number and rate of first marriages also declined substantially for grooms in the 20-24 year age group.

There were significant increases in the number and rate of first marriages of both brides and grooms between ages 25 and 34. These increases were especially sharp during the

Table 3.11
First Marriages by Age of Bride, Michigan Occurrences, 1973-1983

AGE OF BRIDE	YEAR										
	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973
All Ages	53,282	54,746	58,006	59,656	61,281	60,956	59,832	57,860	58,554	63,564	70,076
15-19 Years[1]	12,657	13,684	15,723	17,541	19,531	20,858	22,341	23,208	24,723	28,238	32,658
20-24 Years	26,934	28,100	29,931	30,620	31,260	30,356	28,893	27,014	26,604	28,153	30,249
25-29 Years	10,331	9,776	9,466	8,895	8,059	7,412	6,348	5,634	5,189	5,094	5,036
30-34 Years	2,428	2,117	2,029	1,781	1,595	1,469	1,377	1,113	1,075	1,108	1,108
35-39 Years	558	488	449	415	402	418	385	381	422	382	395
40-44 Years	167	166	160	160	166	165	173	205	177	204	228
45-49 Years	88	73	82	95	110	104	118	126	132	152	154
50 or Over	116	138	165	149	156	173	197	177	229	233	247
Not Stated	3	4	1	-	2	1	-	2	3	-	1

[1] Brides under age 15 included in age 15-19.

Table 3.12
First Marriages by Age of Groom, Michigan Occurrences, 1973-1983

AGE OF GROOM	YEAR										
	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973
All Ages	51,891	53,134	56,017	57,840	59,356	58,806	57,737	55,962	56,655	61,884	68,682
15-19 Years	4,794	5,309	6,070	6,810	7,906	8,267	9,481	10,206	11,188	13,209	15,468
20-24 Years	25,467	27,303	29,698	31,256	32,501	32,900	32,269	30,961	31,327	34,283	38,436
25-29 Years	15,544	14,887	14,834	14,654	13,924	13,026	11,706	10,916	10,336	10,455	10,596
30-34 Years	4,286	4,025	3,790	3,580	3,360	2,996	2,653	2,288	2,157	2,208	2,289
35-39 Years	1,074	956	879	816	837	797	747	665	680	716	749
40-44 Years	321	280	279	292	332	297	324	343	322	339	418
45-49 Years	152	137	167	170	160	183	198	226	241	260	314
50 or Over	246	237	297	262	335	340	358	355	404	412	412
Not Stated	7	-	3	-	1	-	1	2	-	2	-

Table 3.13
First Marriage Rates[1] by Age of Bride, Michigan Occurrences, 1973-1983

AGE OF BRIDE	YEAR										
	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973
All Ages	11.3	11.6	12.2	12.6	12.9	12.9	12.8	12.4	12.6	13.7	15.1
15-19 Years[2]	28.9	31.4	36.5	39.3	43.8	46.9	50.4	52.5	55.8	63.6	73.7
20-24 Years	57.6	60.4	66.1	67.6	69.8	69.1	67.1	63.9	63.9	68.7	75.2
25-29 Years	23.8	22.9	22.8	21.8	20.1	19.1	16.8	15.4	14.5	14.7	15.0
30-34 Years	6.3	5.6	5.3	4.9	4.5	4.3	4.2	3.5	3.5	3.7	3.9
35-39 Years	1.9	1.7	1.5	1.4	1.4	1.5	1.4	1.4	1.6	1.4	1.5
40-44 Years	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.9
45-49 Years	0.4	0.3	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.6	0.6
50 or Over	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2

[1] Number of persons married per 1,000 population.
[2] Brides under 15 included in age 15-19.

Table 3.14
First Marriage Rates[1] by Age of Groom, Michigan Occurrences, 1973-1983

AGE OF GROOM	YEAR										
	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973
All Ages	11.6	11.8	12.4	12.8	13.2	13.1	12.9	12.6	12.7	13.9	15.5
15-19 Years	10.7	11.7	13.8	15.0	17.4	18.3	21.1	22.8	25.0	29.5	34.7
20-24 Years	54.4	59.1	67.3	70.8	75.0	78.1	78.8	77.7	80.7	90.6	104.6
25-29 Years	36.6	35.6	36.5	36.7	35.5	34.2	31.7	30.4	29.6	30.7	32.1
30-34 Years	11.4	10.9	10.3	10.3	9.9	9.1	8.4	7.5	7.3	7.7	8.3
35-39 Years	3.7	3.4	3.1	2.9	3.0	3.0	2.8	2.6	2.7	2.8	3.0
40-44 Years	1.5	1.3	1.2	1.3	1.4	1.3	1.4	1.4	1.3	1.4	1.7
45-49 Years	0.8	0.7	0.8	0.8	0.7	0.8	0.9	1.0	1.0	1.1	1.3
50 or Over	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4

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[1] Number of persons married per 1,000 population.

latter half of the period. Between 1976 and 1983 the number of first marriages increased by 42.4 percent and 87.3 percent for grooms aged 25-29 and 30-34 years respectively. For brides the comparable figures were 83.4 percent and 118.1 percent. Since 1973 the number of first marriages has declined for persons aged 40 or over.

MEDIAN AGE AT FIRST MARRIAGE

The median age at first marriage declined for both brides and grooms between 1953 and the mid-1960's. This decline was greater for males than for females. Grooms were 34 months older than brides at the median in 1953, 23 months older in 1963 and 20 months older in 1968. During the past thirteen years, the median age at first marriage has increased by a similar amount for both males and females. Grooms were 22 months older than brides at the median in 1983.

The median age at first marriage in 1983 was 22 years 4 month for brides and 24 years 2 months for grooms. The 1983 figures are the highest median ages at first marriage recorded during the period (Figure 3.3).

DIVORCES AND ANNULMENTS

The number of reported divorces and annulments reached a record high in 1980, both in Michigan and the nation. In 1981, the frequency for Michigan declined while the national figure reached another record high. By 1983, the Michigan frequency had declined by 15.7 percent to 37,991. Nationally, the number of divorces declined in 1983 to 2.8 percent below the record high figure set in 1981.

The number of divorces and annulments reported for Michigan in 1983 was 2.3 times the number for 1960. Into the 1980's the number of divorces and annulments has begun to decline in Michigan. Between 1960 and 1970 the number of divorces and annulments increased by 80 percent. During the decade of the seventies the increase was 50 percent. Between 1970 and 1975 the number of divorces and annulments increased by 36 percent, and from 1975 to 1980 the increase was 10 percent. During the latter period the first annual declines since 1963 occurred. The number of divorces has declined in each of the last three years through 1983.

The number of persons divorced in Michigan per thousand population decreased from 9.7 in 1980 to 8.3 in 1983. The national rate also declined from a high of 10.6 in 1981 to 10.1 in 1983(provisionally). Michigan's divorce rate was higher than that for the United States each year from 1900 through 1947. In the following 36 years the Michigan

FIGURE 3.3

MEDIAN AGE AT FIRST MARRIAGE BY SEX, MICHIGAN OCCURRENCES, 1953-1983

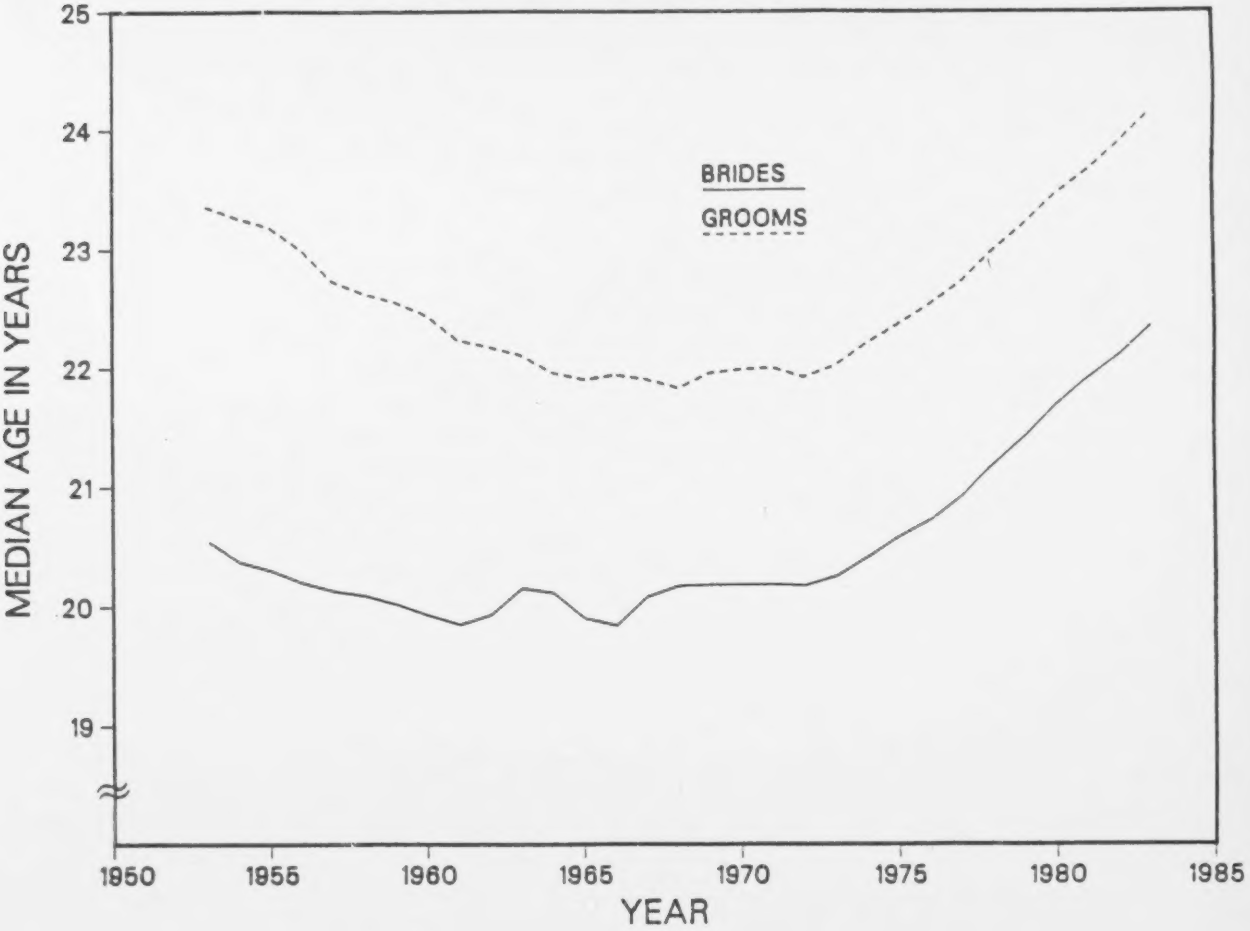


Table 3.15
Number of Divorces and Annulments, and Divorce and Annulment Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1983

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
170,505	3.2	1920	8,679	4.7
195,961	3.2	1930	10,639	4.4
264,000	4.0	1940	12,054	4.6
385,144	5.1	1950	15,979	5.0
393,000	4.4	1960	16,656	4.3
414,000	4.5	1961	16,219	4.1
413,000	4.4	1962	17,500	4.4
428,000	4.5	1963	17,479	4.4
450,000	4.7	1964	19,400	4.8
479,000	4.9	1965	20,305	5.0
499,000	5.1	1966	21,727	5.2
523,000	5.3	1967	23,620	5.5
584,000	5.8	1968	25,400	5.9
639,000	6.3	1969	28,347	6.5
708,000	7.0	1970	29,934	6.7
773,000	7.5	1971	31,790	7.1
845,000	8.1	1972	35,505	7.9
915,000	8.7	1973	37,128	8.2
977,000	9.2	1974	39,940[2]	8.8[2]
1,036,000	9.6	1975	40,782	9.0
1,083,000	10.0	1976	43,101	9.5
1,091,000	9.9	1977	43,036	9.4
1,130,000	10.2	1978	45,029	9.8
1,181,000	10.5	1979	44,242	9.6
1,189,000	10.5	1980	45,047	9.7
1,213,000	10.6	1981	43,167	9.3
1,180,000Pr.	10.2Pr.	1982	39,739	8.6
1,179,000Pr.	10.1Pr.	1983	37,991	8.3

[1] Number of persons whose marriages ended in divorce or annulment per 1,000 population.

[2] Estimate.

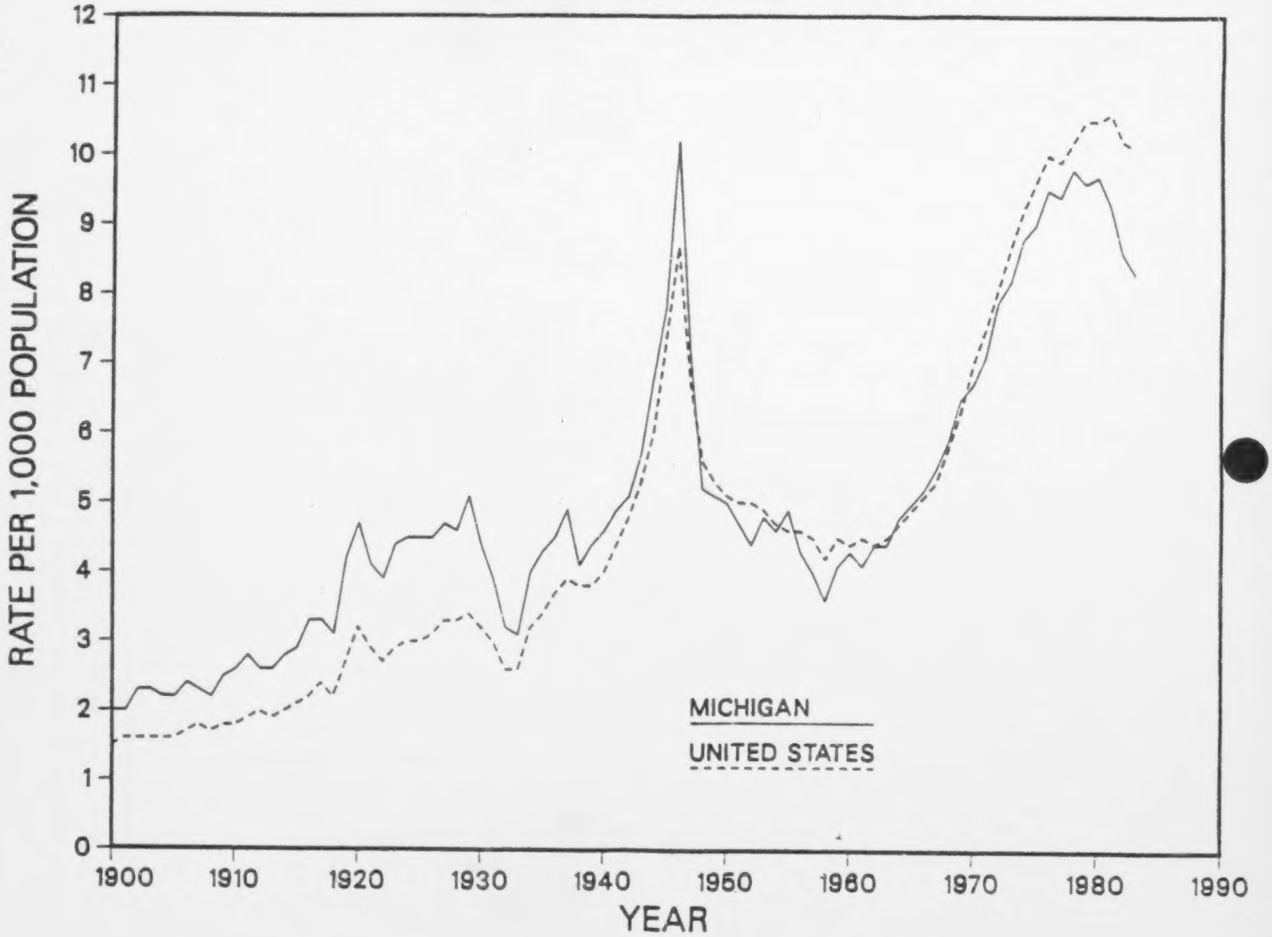
divorce rate has been at or below the national rate 29 times, including each of the past 14 years (Table 3.15 and Figure 3.4). The lowest rate in this century for Michigan was 2.0 in the years 1900 and 1901 while the lowest national rate was 1.5 in 1900. The highest divorce rate for Michigan during this century was recorded in 1946 (10.2).

The number of children under 18 of couples dissolving marriages in 1983 was at least 38,712 (Table 3.16). This is 18.6 percent below the number in 1973. The number of children affected by divorce has however increased as a proportion of all children. This ratio increased from 6.5 per 1,000 Michigan children in 1960 to 12.5 in 1970 and to 17.0 by 1978 (Table 3.17). Since 1978 this rate has held stable, declining in 1982 and 1983. The average number of children per divorce has, nonetheless, dropped from 1.36 children in 1970 to 1.02 in 1983. The decline primarily reflects a decline in the proportion of divorces involving three or more children. It should be noted that Michigan live birth data indicate that there has been a decline in the relative proportion of women having third or higher order live births over the past decade. Data for the United States indicate a similar pattern.

Approximately 23 percent of the persons divorced in 1983 in Michigan were from 25 to 29 years of age (Table 3.18). The median age for husbands was 34 years and 2 months, while the median age for wives was 30 months younger (31 years and 8 months). Roughly 18 percent of the wives were under 25 years of age compared to only 10.0 percent of the husbands. Conversely, 6.5 percent of the wives were 50 years of age or older compared to 10.6 percent of the husbands.

In 11.2 percent of the marriages dissolved in Michigan in 1983 the couple separated less than one year after the marriage took place, and in nearly half of the marriages ended by divorce or annulment the separation took place within five years of the date of marriage (Table 3.19). The median duration of marriage at the time of dissolution was 7 years and 5 months. The median length of time between the date of separation and the date of dissolution of the marriage was 21 months.

FIGURE 3.4
DIVORCE RATES, MICHIGAN AND UNITED STATES OCCURRENCES, 1900-1983[1]



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[1] United States rates for 1982 and 1983 are provisional.

Table 3.16
Divorces and Annulments by Children Under 18 Present,
Michigan Occurrences, 1973 and 1983

NUMBER OF CHILDREN	DIVORCES AND ANNULMENTS				ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	
	NUMBER		PERCENT			
	1973	1983	1973	1983	1973[1]	1983
Zero	14,445	13,649	38.9	35.9	-	-
One	8,840	9,175	23.8	24.2	8,840	9,175
Two	7,149	8,261	19.3	21.7	14,298	16,522
Three	3,723	2,936	10.0	7.7	11,169	8,808
Four	1,784	753	4.8	2.0	7,136	3,012
Five or More	1,103	222	3.0	0.6	6,132	1,195
Not Stated	84	2,995	0.2	7.9	-	-
Total	37,128	37,991	100.0	100.0	47,575	38,712

[1] Total children for marriages involving 8 or more children under 18 is not available.

Table 3.17
Estimated Number of Children Involved in Divorces and Annulments, Average Number of Children Per Decree, and Rate per 1,000 Children Under 18 Years of Age, Michigan and the United States, Selected Years 1960-1983

MICHIGAN			Year	UNITED STATES		
Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age		Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age
19,209	1.15	6.5	1960	463,000	1.18	7.2
40,596	1.36	12.5	1970	870,000	1.22	12.5
43,430	1.37	13.4	1971	946,000	1.22	13.6
46,538	1.31	14.4	1972	1,021,000	1.20	14.7
48,153	1.18	15.8	1975	1,123,000	1.08	16.7
49,555	1.15	16.6	1976	1,117,000	1.03	16.9
47,569	1.11	16.3	1977	1,095,000	1.00	16.7
48,510	1.08	17.0	1978	1,147,000	1.01	17.7
47,019	1.07	16.8	1979	1,181,000	1.00	18.4
46,603	1.04	16.9	1980	1,174,000	0.98	17.3
45,461	1.05	16.8	1981	1,180,000	0.97	18.7
41,156	1.04	15.4	1982	---	---	---
38,712	1.02	14.7	1983[1]	---	---	---

[1] There were 2,995 records on which the number of children under 18 years of age was not stated, compared to 2,779 in 1982.

Table 3.18
Divorces and Annulments by Age of Husband and Wife at Time of Decree, Michigan Occurrences, 1983

AGE	HUSBAND		WIFE	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Total	37,991	100.0	37,991	100.0
Under 20	101	0.4	430	1.5
20-24	2,696	9.6	4,539	16.3
25-29	6,101	21.7	6,853	24.6
30-34	6,062	21.6	5,754	20.6
35-39	4,778	17.0	4,277	15.3
40-44	3,394	12.1	2,740	9.8
45-49	2,024	7.2	1,514	5.4
50-54	1,347	4.8	830	3.0
55-59	781	2.8	478	1.7
60-64	419	1.5	255	0.9
65-69	207	0.7	131	0.5
70-74	113	0.4	52	0.2
75+	100	0.4	45	0.2
Unknown	9,868	000	10,093	000
Median Age	34 Years 2 Months	000	31 Years 8 Months	000

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[1] Based on records with known age only.

Table 3.19
Divorces and Annulments by Duration of Marriage at Time of Separation and at Time of Dissolution, Michigan Occurrences, 1983

DURATION IN YEARS	AT TIME OF SEPARATION		AT TIME OF DISSOLUTION	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Less Than 1	3,886	11.2	1,268	3.4
1-4	12,204	35.1	11,988	31.8
5-9	7,964	22.9	9,837	26.1
10-14	4,741	13.6	6,141	16.3
15-19	2,928	8.4	3,892	10.3
20-24	1,607	4.6	2,186	5.8
25-29	870	2.5	1,234	3.3
30-34	367	1.1	638	1.7
35-39	152	0.4	305	0.8
40-44	38	0.1	118	0.3
45-49	14	0.0	39	0.1
50+	9	0.0	20	0.1
Unknown	3,211	000	325	000
Total	37,991	100.0	37,991	100.0
Median Duration	5 Years 8 Months	000	7 Years 5 Months	000

[1] Based on records with known duration only.

REFERENCE APPENDIX

SECTION IV

TABLE 4.1

POPULATION, LIVE BIRTHS, DEATHS (ALL AGES, INFANT, NEONATAL, POSTNEONATAL, PERINATAL, FETAL, AND MATERNAL), MARRIAGES AND DIVORCES, MICHIGAN, 1900-1983

(Deaths exclusive of fetal deaths. Perinatal deaths include deaths under 1 week and fetal deaths. Divorces include annulments.)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[1]	28-364 Days	Peri-natal	Fetal	Maternal		
1900	2,420,982	43,699	32,453	6,866				1,325	452	23,295	2,435
1901	2,459,901	43,221	32,834	6,319				1,501	531	24,079	2,448
1902	2,498,820	45,546	31,472	5,949				1,793	468	25,653	2,828
1903	2,537,739	46,020	33,176	6,488				1,814	427	26,029	2,945
1904	2,576,658	47,508	34,494	6,419				1,911	436	24,918	2,808
1905	2,615,578	46,976	34,679	7,054				2,044	416	26,307	2,825
1906	2,654,497	58,599	37,033	7,952				2,358	400	27,519	3,192
1907	2,693,416	59,029	36,701	6,906				2,358	391	27,940	3,107
1908	2,732,335	64,772	36,761	7,697				2,694	440	25,765	3,020
1909	2,771,254	64,323	36,313	7,443				2,540	405	27,353	3,516
1910	2,810,173	64,109	39,913	7,998				2,559	431	29,039	3,716
1911	2,895,997	65,756	38,007	7,131				2,716	451	29,859	4,125
1912	2,981,821	69,537	38,804	6,985				2,906	396	31,694	3,838
1913	3,067,645	73,058	40,827	7,659				2,953	528	33,529	3,978
1914	3,153,469	76,761	39,906	7,431				3,113	507	35,316	4,395
1915	3,239,293	81,100	40,441	6,943				3,357	488	35,527	4,757
1916	3,325,116	87,062	46,047	8,415				3,689	503	40,143	5,540
1917	3,410,940	89,419	47,236	7,916				3,550	586	42,791	5,627
1918	3,496,764	91,261	54,617	8,197				3,686	709	33,260	5,493
1919	3,582,588	84,062	45,636	7,560				3,361	578	45,579	7,469
1920	3,668,412	92,245	51,982	8,587				3,770	795	50,805	8,679
1921	3,785,799	96,035	44,186	7,584				3,669	605	41,508	7,676
1922	3,903,186	90,042	43,817	6,730				3,779	551	43,561	7,591
1923	4,020,573	92,956	49,333	7,477				3,657	583	49,569	8,745
1924	4,137,960	98,187	47,304	7,088	4,119	2,969	6,791	3,703	636	49,788	9,400
1925	4,255,347	98,983	49,417	7,498	4,022	3,476	6,667	3,670	629	46,276	9,650
1926	4,372,734	98,289	54,080	7,620	4,054	3,566	6,773	3,816	631	39,788	9,795
1927	4,490,121	99,940	50,600	6,766	3,915	2,851	6,794	3,834	667	36,276	10,617
1928	4,607,508	97,462	54,755	6,806	3,739	3,067	6,594	3,701	603	37,300	10,615
1929	4,724,895	98,695	56,117	6,605	3,777	2,828	6,613	3,710	617	36,816	12,094
1930	4,842,325	98,882	51,561	6,213	3,624	2,589	6,518	3,714	597	29,482	10,639
1931	4,883,703	90,547	49,068	5,187	3,084	2,103	5,643	3,220	539	28,856	9,507
1932	4,925,081	85,254	49,569	4,630	2,798	1,832	5,210	2,980	493	28,552	7,889
1933	4,966,459	80,482	48,507	4,094	2,591	1,503	4,906	2,776	447	33,132	7,671
1934	5,007,837	83,944	50,440	4,377	2,717	1,660	4,781	2,607	450	43,241	10,124
1935	5,049,216	87,403	51,051	4,170	2,550	1,620	4,832	2,717	438	45,313	10,844
1936	5,090,594	88,457	54,777	4,479	2,647	1,832	4,726	2,625	425	47,023	11,419
1937	5,131,972	91,566	53,468	4,374	2,700	1,674	4,919	2,707	326	47,954	12,472
1938	5,173,350	96,962	50,678	4,319	2,734	1,585	4,984	2,732	345	30,105	10,646
1939	5,214,728	94,432	52,017	3,952	2,594	1,358	4,706	2,572	280	37,725	11,589

TABLE 4.1 (continued)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal		
1940	5,256,106	99,106	52,092	4,022	2,629	1,393	4,749	2,602	292	46,342	12,054
1941	5,437,546	107,498	52,671	4,166	2,687	1,479	4,991	2,769	298	50,989	13,317
1942	5,538,856	124,068	52,738	4,606	3,091	1,515	5,581	3,067	260	51,582	14,085
1943	5,377,329	125,441	56,774	4,804	2,979	1,825	5,563	3,213	237	44,385	15,259
1944	5,377,329	113,586	54,016	4,326	2,784	1,542	5,140	2,874	198	41,678	18,356
1945	5,435,092	111,557	53,641	4,008	2,670	1,338	4,906	2,703	166	48,329	21,133
1946	5,708,415	138,572	54,856	4,541	3,323	1,218	5,978	3,168	163	78,808	29,158
1947	6,069,000	160,275	56,807	5,055	3,677	1,378	6,583	3,422	173	71,319	21,386
1948	6,195,000	153,726	56,520	4,617	3,352	1,265	5,968	3,132	120	61,986	16,017
1949	6,352,000	156,469	57,107	4,520	3,232	1,288	5,746	2,994	105	53,109	16,274
1950	6,371,766	160,055	57,567	4,214	3,043	1,171	5,781	3,095	91	58,180	15,979
1951	6,545,000	172,451	59,181	4,505	3,296	1,209	6,088	3,158	94	53,411	15,446
1952	6,708,000	177,835	59,138	4,689	3,414	1,275	6,266	3,224	82	50,487	14,925
1953	6,852,000	182,968	62,087	4,728	3,369	1,339	6,188	3,180	79	53,308	16,537
1954	7,024,000	192,104	60,706	4,795	3,560	1,235	6,415	3,249	94	51,243	16,281
1955	7,236,000	196,294	63,087	4,873	3,707	1,166	6,381	3,029	61	55,698	17,676
1956	7,516,000	206,068	64,352	5,047	3,796	1,251	6,655	3,245	84	57,068	16,228
1957	7,803,000	208,488	66,435	5,093	3,884	1,209	6,668	3,154	79	55,121	15,442
1958	7,866,000	202,690	65,899	4,980	3,789	1,191	6,516	3,101	69	55,159	14,040
1959	7,960,000	198,301	66,812	4,846	3,674	1,172	6,250	2,928	72	58,826	16,168
1960	7,823,194	195,056	67,912	4,702	3,580	1,122	6,247	3,008	75	61,090	16,656
1961	7,903,000	192,825	67,375	4,604	3,475	1,129	5,875	2,735	78	63,320	16,219
1962	7,939,000	182,790	70,049	4,367	3,251	1,116	5,669	2,703	56	65,002	17,500
1963	8,030,000	178,871	72,438	4,150	3,109	1,041	5,407	2,640	71	68,160	17,479
1964	8,100,000	175,103	72,129	4,043	3,071	972	5,293	2,466	62	73,911	19,400
1965	8,199,283	166,464	73,665	3,936	2,909	1,027	5,139	2,475	54	81,247	20,305
1966	8,314,070	165,794	74,596	3,751	2,830	921	4,909	2,295	54	83,903	21,727
1967	8,615,000	162,756	75,360	3,595	2,714	881	4,693	2,195	52	84,363	23,620
1968	8,675,000	159,058	76,855	3,438	2,617	821	4,476	2,064	44	90,984	25,400
1969	8,734,000	165,760	76,693	3,356	2,550	806	4,488	2,175	27	93,392	28,347
1970	8,875,083	171,667	76,321	3,492	2,671	821	4,522	2,060	29	91,933	29,934
1971	8,972,000	162,244	77,395	3,157	2,412	745	4,139	1,923	32	92,134	31,790
1972	9,025,000	146,854	79,210	2,801	2,115	686	3,700	1,765	35	94,447	35,505
1973	9,072,000	141,550	78,522	2,561	1,902	659	3,392	1,682	26	94,486	37,128
1974	9,109,000	137,414	76,143	2,387	1,734	653	2,947	1,438	19	88,023	39,940[3]
1975	9,108,000	133,931	74,522	2,205	1,563	642	2,673	1,356	16	82,856	40,782
1976	9,117,000	131,378	75,801	1,978	1,424	554	2,495	1,264	14	82,753	43,101
1977	9,157,000	138,416	74,144	1,945	1,367	578	2,452	1,284	11	86,088	43,036
1978	9,202,000	138,802	74,773	1,931	1,281	650	2,302	1,201	15	88,333	45,029
1979	9,249,000	144,452	73,480	1,921	1,295	626	2,285	1,175	11	89,450	44,242
1980	9,262,078	145,162	74,991	1,851	1,284	567	2,235	1,135	16	86,898	45,047
1981	9,270,000	140,579	75,818	1,851	1,281	570	2,151	1,040	7	85,252	43,167
1982	9,227,327	137,950	75,536	1,672	1,202	470	1,988	953	11	82,633	39,739
1983	9,155,480	133,026	76,639	1,573	1,067	506	1,753	843	6	78,910	37,991

[1] -1971-1979 population estimates have been revised by the U.S. Census Bureau.

[2] -For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.

[3] -Estimate.

TABLE 4.2
LIVE BIRTH RATES, DEATH RATES (ALL AGES, INFANT, NEONATAL, POSTNEONATAL PERINATAL, AND MATERNAL), FETAL DEATH RATIOS, MARRIAGE AND DIVORCE RATES, MICHIGAN, 1900-1983[1]

(Birth rate, death rate for all ages, rate of persons married and rate of persons divorced per 1,000 population. Fetal death ratio, mortality rates for deaths under 1 year, under 28 days, and from 28-364 days per 1,000 live births. Maternal mortality rate per 10,000 live births. Perinatal mortality rate per 1,000 live births and fetal deaths.)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[1]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1900	18.1	13.4	157.1				30.3	103.4	19.2	2.0
1901	17.6	13.3	146.2				34.7	122.9	19.6	2.0
1902	18.2	12.6	130.6				39.4	102.8	20.5	2.3
1903	18.1	13.1	141.0				39.4	92.8	20.5	2.3
1904	18.4	13.4	135.1				40.2	91.8	19.3	2.2
1905	18.0	13.3	150.2				43.5	88.6	20.1	2.2
1906	22.1	14.0	135.7				40.2	68.3	20.7	2.4
1907	21.9	13.6	117.0				39.9	66.2	20.7	2.3
1908	23.7	13.5	118.8				41.6	67.9	18.9	2.2
1909	23.2	13.1	115.7				39.5	63.0	19.7	2.5
1910	22.8	14.2	124.8				39.9	67.2	20.7	2.6
1911	22.7	13.1	108.4				41.3	68.6	20.6	2.8
1912	23.3	13.0	100.4				41.8	56.9	21.3	2.6
1913	23.8	13.3	104.8				40.4	72.3	21.9	2.6
1914	24.3	12.7	96.8				40.6	66.0	22.4	2.8
1915	25.0	12.5	85.6				41.4	60.2	21.9	2.9
1916	26.2	13.8	96.7				42.4	57.8	24.1	3.3
1917	26.2	13.8	88.5				39.7	65.5	25.1	3.3
1918	26.1	15.6	89.8				40.4	77.7	19.0	3.1
1919	23.5	12.7	89.9				40.0	68.8	25.4	4.2
1920	25.1	14.2	93.1				40.9	86.2	27.7	4.7
1921	25.4	11.7	79.0				38.2	63.0	21.9	4.1
1922	23.1	11.2	74.7				42.0	61.2	22.3	3.9
1923	23.1	12.3	80.4				39.3	62.7	24.7	4.4
1924	23.7	11.4	72.2	41.9	30.2	66.7	37.7	64.8	24.1	4.5
1925	23.3	11.6	75.7	40.6	35.1	64.9	37.1	63.5	21.7	4.5
1926	22.5	12.4	77.5	41.2	36.3	66.3	38.8	64.2	18.7	4.5
1927	22.3	11.3	67.7	39.2	28.5	65.5	38.4	66.7	16.2	4.7
1928	21.2	11.9	69.8	38.4	31.5	65.2	38.0	61.9	16.2	4.6
1929	20.9	11.9	66.9	38.3	28.7	64.6	37.6	62.5	15.6	5.1
1930	20.4	10.6	62.8	36.6	26.2	63.5	37.6	60.4	12.2	4.4
1931	18.5	10.1	57.3	34.1	23.2	60.2	35.6	59.5	11.8	3.9
1932	17.3	10.1	54.3	32.8	21.5	59.0	35.0	57.8	11.6	3.2
1933	16.2	9.8	50.9	32.2	18.7	58.9	34.5	55.5	13.3	3.1
1934	16.8	10.1	52.1	32.4	19.8	55.2	31.1	53.6	17.3	4.0
1935	17.3	10.1	47.7	29.2	18.5	53.6	31.1	50.1	17.9	4.3
1936	17.4	10.8	50.6	29.9	20.7	51.9	29.7	48.0	18.5	4.5
1937	17.8	10.4	47.8	29.5	18.3	52.2	29.6	35.6	18.7	4.9
1938	18.7	9.8	44.5	28.2	16.3	50.0	28.2	35.6	11.6	4.1
1939	18.1	10.0	41.8	27.5	14.4	48.5	27.2	29.6	14.5	4.4

TABLE 4.2 (continued)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1940	18.9	9.9	40.6	26.5	14.1	46.7	26.3	29.5	17.6	4.6
1941	19.8	9.7	38.8	25.0	13.8	45.3	25.8	27.7	18.8	4.9
1942	22.4	9.5	37.1	24.9	12.2	43.9	24.7	21.0	18.6	5.1
1943	23.3	10.6	38.3	23.7	14.5	43.2	25.6	18.9	16.5	5.7
1944	21.1	10.0	38.1	24.5	13.6	44.1	25.3	17.4	15.5	6.8
1945	20.5	9.9	35.9	23.9	12.0	42.9	24.2	14.9	17.8	7.8
1946	24.3	9.6	32.8	24.0	8.8	42.2	22.9	11.8	27.6	10.2
1947	26.4	9.4	31.5	22.9	8.6	40.2	21.4	10.8	23.5	7.1
1948	24.8	9.1	30.0	21.8	8.2	38.0	20.4	7.8	20.0	5.2
1949	24.6	9.0	28.9	20.7	8.2	36.0	19.1	6.7	16.7	5.1
1950	25.1	9.0	26.3	19.0	7.3	35.4	19.3	5.7	18.3	5.0
1951	26.3	9.0	26.1	19.1	7.0	34.7	18.3	5.5	16.3	4.7
1952	26.5	8.8	26.4	19.2	7.2	34.6	18.1	4.6	15.1	4.4
1953	26.7	9.1	25.8	18.5	7.3	33.2	17.4	4.3	15.6	4.8
1954	27.3	8.6	25.0	18.5	6.4	32.8	16.9	4.9	14.6	4.6
1955	27.1	8.7	24.8	18.9	5.9	32.0	15.4	3.1	15.4	4.9
1956	27.4	8.6	24.5	18.4	6.1	31.8	15.7	4.1	15.2	4.3
1957	26.7	8.5	24.4	18.6	5.8	31.5	15.1	3.8	14.1	4.0
1958	25.8	8.4	24.6	18.7	5.9	31.7	15.3	3.4	14.0	3.6
1959	24.9	8.4	24.4	18.5	5.9	31.1	14.8	3.6	14.8	4.1
1960	24.9	8.7	24.1	18.4	5.8	31.5	15.4	3.8	15.6	4.3
1961	24.4	8.5	23.9	18.0	5.9	30.0	14.2	4.0	16.0	4.1
1962	23.0	8.8	23.9	17.8	6.1	30.6	14.8	3.1	16.4	4.4
1963	22.3	9.0	23.2	17.4	5.8	29.8	14.2	4.0	17.0	4.4
1964	21.6	8.9	23.1	17.5	5.6	29.8	14.1	3.5	18.2	4.8
1965	20.3	9.0	23.6	17.5	6.2	30.4	14.9	3.2	19.8	5.0
1966	19.9	9.0	23.6	17.1	5.6	29.2	13.8	3.3	20.2	5.2
1967	18.9	8.7	22.1	16.7	5.4	28.4	13.5	3.2	19.6	5.5
1968	18.3	8.9	21.6	16.5	5.2	27.8	13.0	2.8	21.0	5.9
1969	19.0	8.8	20.2	15.4	4.9	26.7	13.1	1.6	21.4	6.5
1970	19.3	8.6	20.3	15.6	4.8	26.0	12.0	1.7	20.7	6.7
1971	18.1	8.6	19.5	14.9	4.6	25.2	11.9	2.0	20.5	7.1
1972	16.3	8.8	19.1	14.4	4.7	24.9	12.0	2.4	20.9	7.9
1973	15.6	8.7	18.1	13.4	4.7	23.7	11.9	1.8	20.8	8.2
1974	15.1	8.4	17.4	12.6	4.8	21.2	10.5	1.4	19.3	8.8[3]
1975	14.7	8.2	16.5	11.7	4.8	19.8	10.1	1.2	18.2	9.0
1976	14.4	8.3	15.1	10.8	4.2	18.8	9.6	1.1	18.2	9.5
1977	15.1	8.1	14.1	9.9	4.2	17.6	9.3	0.8	18.8	9.4
1978	15.1	8.1	13.9	9.2	4.7	16.4	8.7	1.1	19.2	9.8
1979	15.6	7.9	13.3	9.0	4.3	15.7	8.1	0.8	19.3	9.6
1980	15.7	8.1	12.8	8.8	3.9	15.3	7.8	1.1	18.8	9.7
1981	15.2	8.2	13.2	9.1	4.1	15.2	7.4	0.5	18.4	9.3
1982	15.0	8.2	12.1	8.7	3.4	14.3	6.9	0.8	17.9	8.6
1983	14.5	8.4	11.8	8.0	3.8	13.1	6.3	0.5	17.2	8.3

[1] -1971-1979 birth, death, marriage and divorce rates have been recalculated using revised population estimates.

[2] -For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.

[3] -Estimate.

TABLE 4.3
NUMBER OF LIVE BIRTHS BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1983

YEAR	AGE OF MOTHER									
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1920	92,740	34	8,129	26,344	26,251	17,521	10,427	3,523	336	175
1921	96,322	39	8,747	26,583	27,292	18,433	11,150	3,572	337	169
1922	90,209	28	8,125	24,575	25,154	17,690	10,584	3,485	343	225
1923	93,066	37	8,725	25,887	25,459	18,072	10,770	3,476	382	258
1924	98,025	38	9,877	28,000	25,781	18,707	11,395	3,682	321	224
1925	99,220	62	10,248	28,116	26,204	18,869	11,406	3,695	379	241
1926	98,781	76	10,496	28,479	25,876	18,444	11,219	3,568	354	269
1927	100,178	59	10,685	29,302	25,707	18,790	11,287	3,722	332	294
1928	97,797	54	10,788	28,895	25,003	17,953	10,913	3,558	315	318
1929	99,134	56	11,312	30,582	25,557	16,957	10,555	3,523	293	299
1930	99,325	60	11,476	29,956	25,861	17,125	10,684	3,582	291	290
1931	90,929	61	10,109	27,255	23,806	15,937	9,905	3,317	302	237
1932	85,736	62	9,297	25,686	22,608	14,988	9,314	3,250	291	240
1933	80,923	52	8,642	23,874	21,618	14,298	8,795	3,173	261	210
1934	83,925	48	9,039	25,458	22,507	14,968	8,391	3,050	259	205
1935	87,446	47	9,808	27,631	22,938	15,026	8,473	3,029	284	210
1936	88,427	53	9,764	28,681	23,584	14,814	8,194	2,866	274	197
1937	91,539	54	10,524	30,532	24,366	15,022	7,949	2,653	242	197
1938	96,963	64	11,024	32,581	26,116	15,690	8,397	2,698	253	140
1939	94,302	51	10,368	31,036	26,095	15,976	8,021	2,416	209	130
1940	99,021	51	10,671	32,960	27,860	16,549	8,146	2,390	202	192
1941	107,458	50	11,309	36,833	31,067	17,132	8,351	2,361	200	155
1942	123,886	66	12,721	43,947	36,034	19,367	8,985	2,445	202	119
1943	[illegible]3,778	67	11,934	41,627	37,773	21,449	9,980	2,615	184	149
1944	114,700	76	10,113	36,096	33,654	21,094	10,636	2,714	182	135
1945	112,655	73	9,294	32,790	33,143	22,831	11,185	2,970	229	140
1946	139,277	72	10,899	45,999	41,985	25,184	11,811	3,002	223	102
1947	161,085	91	15,594	55,954	47,793	26,296	12,009	3,073	182	93
1948	154,730	95	16,245	53,520	45,059	25,268	11,391	2,888	173	91
1949	157,178	117	16,404	53,608	46,363	25,971	11,565	2,906	181	63
1950	160,955	111	16,310	53,442	48,186	27,422	12,392	2,831	169	92
1951	173,506	104	17,974	57,340	52,044	29,674	13,086	3,040	160	84
1952	178,634	134	17,206	58,012	54,198	31,756	13,880	3,176	220	52
1953	182,810	166	18,510	58,070	54,734	32,948	14,798	3,350	190	44
1954	192,332	208	20,522	60,776	55,962	35,152	15,862	3,598	220	32
1955	196,623	195	21,417	61,952	56,462	35,968	16,554	3,862	198	15
1956	206,226	192	22,808	66,332	58,392	36,870	17,282	4,172	164	14
1957	208,808	190	23,798	67,086	58,424	36,980	17,956	4,160	200	14
1958	202,900	222	23,034	65,834	55,130	36,278	17,892	4,296	196	18
1959	198,576	200	21,922	65,426	53,434	34,934	18,030	4,424	198	8
1960	195,056	186	22,786	65,108	51,842	33,228	17,410	4,288	202	6

TABLE 4.3 (continued)

YEAR	AGE OF MOTHER									
	ALL AGES¹	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1961	192,825	212	23,891	64,336	50,277	32,456	17,067	4,363	203	20
1962	182,790	268	22,702	62,243	47,109	29,817	16,160	4,250	224	17
1963	178,871	210	21,686	62,834	46,063	28,364	15,117	4,359	229	9
1964	175,103	264	22,526	62,196	44,671	26,542	14,509	4,162	220	13
1965	166,464	267	24,653	59,439	40,693	23,767	13,528	3,886	211	20
1966	165,794	310	28,690	60,711	39,225	21,205	11,846	3,547	223	37
1967	162,756	316	27,267	61,541	40,052	19,840	10,479	3,059	178	24
1968	159,058	400	26,390	60,072	41,561	18,613	9,095	2,739	163	25
1969	165,760	421	28,061	63,376	44,615	18,535	8,157	2,433	134	28
1970	171,667	489	29,764	65,892	46,262	19,003	7,904	2,223	118	12
1971	162,244	472	28,480	62,367	43,639	18,259	6,975	1,926	112	14
1972	146,854	503	28,108	54,199	40,442	16,133	5,805	1,555	95	14
1973	141,550	569	27,808	51,284	39,845	15,520	5,163	1,277	62	22
1974	137,414	501	25,977	49,975	40,215	15,317	4,291	1,063	50	25
1975	133,931	463	24,509	48,675	40,061	14,891	4,273	982	54	23
1976	131,378	404	22,593	47,161	41,412	14,893	4,053	799	47	16
1977	138,416	426	22,585	49,740	43,346	17,293	4,178	771	51	26
1978	138,802	345	21,487	49,498	43,744	18,367	4,562	729	50	20
1979	144,452	355	21,239	51,319	46,084	19,962	4,720	715	41	17
1980	145,162	331	20,000	51,218	47,113	21,024	4,692	740	22	22
1981	140,579	300	18,397	47,737	46,527	22,178	4,701	695	34	10
1982	137,950	319	17,344	45,586	45,995	22,564	5,395	711	29	7
1983	133,026	328	16,589	42,034	45,065	22,505	5,669	791	38	7

¹-Total live births for the years 1920 through 1959 differ from figures in Table 4.1 as they are derived from outside sources. Live births by age of mother were not tabulated in Michigan prior to 1960. These data were obtained from the following sources:

1920-1923:	Unpublished tables from the National Center for Health Statistics.
1924-1932:	Bureau of the Census publication, _Birth, Stillbirth and Infant Mortality Statistics for Birth Registration Areas of the United States_.
1933-1936:	Unpublished tables from the National Center for Health Statistics.
1937-1949:	Bureau of the Census publication, _Vital Statistics of the United States_ series.
1950-1959:	Department of Health Education and Welfare publication, _Vital Statistics of the United States_ series.

TABLE 4.4
LIVE BIRTH RATES BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1983

(Live birth rates are per 1,000 women per year. Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1920	0.2	55.7	173.1	164.0	124.2	83.8	34.3	3.8	3,195.5
1921	0.2	56.9	167.3	165.5	125.8	84.8	32.8	3.6	3,184.5
1922	0.2	50.8	149.6	149.1	117.3	77.1	30.7	3.5	2,891.5
1923	0.2	52.6	152.6	147.5	116.5	75.4	29.3	3.8	2,889.5
1924	0.2	57.4	160.0	146.1	117.3	76.7	29.9	3.1	2,953.5
1925	0.3	57.4	155.9	145.4	115.2	73.9	28.8	3.5	2,902.0
1926	0.4	56.9	153.3	140.5	109.7	70.1	26.8	3.2	2,804.5
1927	0.3	56.0	153.3	136.8	108.9	68.1	27.0	2.9	2,766.5
1928	0.2	54.8	147.1	130.3	101.5	63.7	25.0	2.6	2,626.0
1929	0.2	55.7	151.5	130.6	93.6	59.6	23.9	2.4	2,587.5
1930	0.3	55.2	145.5	130.2	92.8	58.9	23.7	2.3	2,544.5
1931	0.3	47.8	130.4	118.3	85.3	54.3	21.5	2.3	2,301.0
1932	0.3	43.4	121.5	111.2	79.4	50.8	20.8	2.2	2,148.0
1933	0.2	39.7	111.6	105.2	75.0	47.7	20.0	1.9	2,006.5
1934	0.2	41.0	117.6	108.4	77.8	45.3	18.9	1.8	2,055.0
1935	0.2	43.9	126.2	109.4	77.4	45.5	18.5	2.0	2,115.5
1936	0.2	43.1	129.5	111.4	75.5	43.8	17.3	1.8	2,113.0
1937	0.2	45.9	136.4	113.9	75.9	42.3	15.8	1.6	2,160.0
1938	0.3	47.4	143.9	120.9	78.5	44.4	15.8	1.6	2,264.0
1939	0.2	44.1	135.6	119.6	79.2	42.3	14.0	1.3	2,181.5
1940	0.2	44.9	142.8	126.8	81.5	42.8	13.7	1.2	2,269.5
1941	0.2	48.1	157.8	137.1	81.6	42.5	13.2	1.2	2,408.5
1942	0.3	54.5	186.6	155.3	89.9	44.7	13.4	1.2	2,729.5
1943	0.3	51.6	175.1	159.0	97.1	48.6	14.1	1.1	2,734.5
1944	0.3	44.1	150.5	138.5	93.2	50.6	14.3	1.0	2,462.5
1945	0.3	40.8	135.5	133.4	98.5	52.1	15.4	1.3	2,386.5
1946	0.3	48.3	188.5	165.3	106.2	53.8	15.3	1.2	2,894.5
1947	0.4	69.7	227.3	184.2	108.4	53.6	15.4	1.0	3,300.0
1948	0.4	73.2	215.5	170.0	101.9	49.8	14.2	1.0	3,130.0
1949	0.5	74.6	214.0	171.4	102.5	49.6	14.1	1.0	3,138.5
1950	0.5	74.6	212.0	175.5	106.5	52.3	13.6	0.9	3,179.5
1951	0.4	79.1	229.0	192.2	114.4	53.9	14.1	0.8	3,419.5
1952	0.5	73.5	233.0	202.5	121.7	56.1	14.4	1.1	3,514.0
1953	0.6	76.8	234.5	207.0	125.5	58.7	14.9	0.9	3,594.5
1954	0.7	82.8	246.8	214.1	133.1	61.8	15.6	1.1	3,780.0
1955	0.6	84.1	253.0	218.6	135.4	63.4	16.4	0.9	3,862.0
1956	0.6	87.2	272.4	228.9	138.0	65.0	17.4	0.8	4,051.5
1957	0.6	88.6	277.1	231.8	137.6	66.4	17.0	0.9	4,100.0
1958	0.6	83.6	273.4	221.5	134.3	65.0	17.2	0.9	3,982.5
1959	0.6	77.6	273.3	217.4	128.6	64.4	17.3	0.9	3,900.5

TABLE 4.4 (continued)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+¹	
1960	0.5	79.3	273.1	213.0	121.8	61.4	16.6	0.9	3,833.0
1961	0.6	78.1	252.0	200.7	120.2	61.3	16.8	0.9	3,653.0
1962	0.7	70.7	231.5	183.9	111.4	58.9	16.3	0.9	3,371.5
1963	0.5	64.6	222.5	175.9	107.0	55.9	16.6	0.9	3,219.5
1964	0.6	64.2	210.1	167.0	101.0	54.4	15.8	0.9	3,070.0
1965	0.6	67.4	192.0	149.0	91.2	51.5	14.7	0.8	2,836.0
1966	0.7	75.4	187.9	140.7	82.1	45.8	13.4	0.9	2,734.5
1967	0.7	69.0	182.8	140.8	77.6	41.2	11.5	0.7	2,621.5
1968	0.9	64.3	171.5	143.2	73.4	36.3	10.2	0.6	2,502.0
1969	0.9	66.0	174.2	150.8	73.8	33.1	9.1	0.5	2,542.0
1970	1.0	68.2	176.2	154.2	76.2	32.4	8.3	0.4	2,584.5
1971	1.0	64.7	161.7	138.6	69.1	27.9	7.2	0.4	2,353.0
1972	1.1	63.7	137.6	124.1	58.6	22.8	5.9	0.4	2,071.0
1973	1.2	62.8	127.5	118.3	54.2	19.9	4.9	0.2	1,945.0
1974	1.1	58.5	121.9	115.7	51.5	16.3	4.1	0.2	1,846.5
1975	1.1	55.3	117.0	112.3	48.4	16.0	3.9	0.2	1,771.0
1976	0.9	51.1	111.6	113.0	46.9	15.0	3.2	0.2	1,709.5
1977	1.0	50.9	115.5	114.9	52.6	15.2	3.1	0.2	1,767.0
1978	0.8	48.3	112.7	112.6	54.0	16.3	3.0	0.2	1,739.5
1979	0.9	47.6	114.6	115.2	56.7	16.6	3.0	0.2	1,774.0
1980	0.8	44.8	113.1	115.6	58.4	16.4	3.1	0.1	1,761.5
1981	0.8	42.7	105.4	112.1	58.0	15.9	2.9	0.2	1,690.0
1982	0.9	39.2	98.0	107.6	59.2	18.4	3.1	0.1	1,632.5
1983	0.9	37.9	89.8	104.0	58.0	19.3	3.6	0.2	1,568.5

¹-Number of live births to women aged 45 and over per 1,000 women 45-49 years of age.

SOURCE: Population figures used for 1920-1970 rates are from General Population Characteristics, Michigan, USBC, 1971, with arithmetic extrapolation between census years. For 1971-1983 population source, see Technical Notes.

TABLE 4.5
REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1983

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPOX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB[1] (ALL FORMS)	MENINGOCOCCAL INFECTIONS[1]	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	2,706	6,734	894	5,122	3,375	20,356		2,721	654				
1901	2,498	7,726	5,088	3,002	2,955	4,629		2,915	506				
1902	2,993	6,582	7,086	2,456	3,534	11,978		2,658	528				
1903	3,670	5,353	6,341	2,840	4,172	8,941		2,745	525				
1904	3,510	4,088	5,753	3,028	1,779	10,386		2,928	448				
1905	2,159	2,286	2,985	2,774	1,196	6,061		2,590	577				
1906	3,648	3,066	1,240	3,163	1,364	7,403		2,653	533				
1907	2,935	2,514	1,712	1,953	872	12,139		2,699	575				
1908	26,58	3,087	2,306	2,656	1,248	4,775		2,705	487				
1909	3,109	5,153	1,533	2,694	1,054	9,047		3,423	457				
1910	3,433	6,501	3,319	3,361	1,136	13,934		4,415	522	104			
1911	3,762	5,177	898	2,660	1,897	9,639		5,254	478	68			
1912	3,294	4,533	1,127	2,847	1,255	2,834		1,958	88	78			
1913	5,505	4,140	1,995	2,253	929	9,185		1,920	165	56			
1914	5,149	3,769	1,527	2,167	1,822	11,356		2,566	205	49			
1915	4,386	3,402	1,094	1,956	2,258	4,438		3,648	107	95			
1916	5,625	6,932	1,581	2,513	1,837	12,143		7,076	163	598			
1917	8,499	14,322	3,674	1,723	3,211	14,472		4,856	75	91			
1918	6,128	5,944	5,241	1,339	2,563	6,726		3,655	95	121			
1919	7,896	6,269	2,381	1,254	1,829	8,885		4,231	75	155	5,077	7,910	186
1920	10,360	10,280	4,818	1,421	7,171	22,364		4,994	203	67	8,117	11,463	262
1921	12,075	10,893	4,512	1,837	6,696	3,043		5,708	173	483	7,421	9,774	153
1922	8,513	9,687	1,230	1,108	5,642	12,107		5,573	159	43	7,900	9,717	90
1923	7,725	12,868	2,311	982	7,617	30,041		5,471	186	39	10,480	9,597	235
1924	6,011	12,989	4,527	782	4,364	18,290		5,570	157	647	13,000	10,490	183
1925	3,925	12,303	784	962	7,576	10,332		5,785	128	99	14,668	10,660	104
1926	5,377	12,681	549	583	8,776	39,946		5,387	96	107	14,872	10,707	103
1927	4,575	11,011	1,467	581	6,818	8,303		5,406	138	282	15,713	9,318	107
1928	3,724	10,486	1,335	390	9,700	27,039		5,885	276	77	15,323	8,592	100
1929	4,618	14,245	2,410	310	9,340	18,040		6,248	1,864	180	16,606	9,661	333
1930	3,206	11,174	2,375	504	7,937	28,129		5,128	901	208	16,538	8,554	163
1931	1,831	13,023	915	424	11,448	6,212		6,132	293	1,137	14,662	7,843	170
1932	1,188	15,255	222	513	13,091	42.129		7,103	129	112	11,969	6,963	140
1933	1,152	16,419	46	453	11,720	21,654		6,624	86	93	7,691	6,447	85
1934	614	19,238	49	486	11,255	6,528		5,264	53	230	6,483	6,188	132
1935	645	11,849	16	355	13,427	79,061		4,642	113	614	6,416	6,372	110
1936	661	12,650	32	287	14,287	2,453		5,157	120	152	6,401	6,460	133
1937	842	24,798	152	241	11,426	6,154		6,469	87	421	8,708	7,072	244
1938	619	18,362	274	285	14,563	79,400		6,335	69	59	14,684	7,046	341
1939	452	15,836	371	177	8,997	12,948		6,119	46	904	13,144	6,364	286
1940	264	10,366	76	120	11,757	20,206		6,063	49	1,228	9,999	7,650	218
1941	242	8,756	114	147	16,512	70,748		5,371	49	270	11,370	8,767	359
1942	243	7,503	17	74	11,602	8,569		5,720	66	162	12,461	8,753	276
1943	281	5,044	18	115	12,091	51,764		6,546	757	255	15,933	9,526	260

TABLE 4.5 (continued)

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPOX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB[2] (ALL FORMS)	MENINGOCOCCAL[1] INFECTIONS	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1944	419	8,963	10	78	4,049	26,711		6,419	857	884	17,288	11,987	185
1945	630	9,304	16	59	5,339	6,328	134	5,471	270	215	16,046	12,565	244
1946	385	5,977	3	85	8,116	42,261	34	5,548	185	1,091	18,051	12,635	206
1947	238	4,834	1	77	10,472	9,574	14	6,470	113	646	15,276	10,989	216
1948	126	5,934	-	49	2,668	42,952	9	6,109	107	775	12,100	9,448	465
1949	119	8,852	-	48	4,157	20,279	28	5,953	120	2,909	8,740	9,427	336
1950	84	4,665	-	43	9,184	38,245	48	5,538	133	2,029	8,830	8,678	202
1951	48	8,181	-	33	3,156	15,227	325	6,144	138	1,463	6,532	8,494	187
1952	45	8,325	-	53	1,992	32,941	283	6,152	169	3,912	7,377	7,691	58
1953	12	5,885	-	31	2,932	23,334	868	5,643	151	2,346	5,619	8,790	43
1954	57	5,142	-	30	5,620	40,725	1,419	5,764	150	2,168	4,686	9,940	47
1955	59	5,880	-	24	4,249	23,882	1,244	5,488	170	1,177	4,865	10,306	58
1956	220	7,349	-	56	1,907	41,966	814	5,515	182	656	4,785	9,598	52
1957	130	7,193	-	12	1,363	19,070	657	5,011	175	498	4,571	8,428	97
1958	6	5,380	-	18	1,233	41,448	688	5,587	228	1,228	4,267	8,621	178
1959	3	9,452	-	8	3,001	12,234	1,136	4,743	141	448	3,421	8,033	136
1960	9	9,287	-	14	1,129	36,161	2,113	4,127	169	88	3,647	8,372	112
1961	3	8,347	-	7	639	29,391	4,607	3,838	253	40	3,309	9,505	102
1962	4	8,116	-	12	1,756	25,303	3,280	3,474	139	21	4,331	11,654	75
1963	5	11,964	-	14	1,410	48,752	2,661	3,298	104	18	5,512	11,043	98
1964	1	17,228	-	13	957	30,897	2,472	3,047	80	3	5,220	12,028	106
1965	-	14,622	-	7	612	28,132	2,625	3,069	107	1	5,638	14,319	95
1966	1	13,862	-	7	653	15,251	2,589	3,259	135	1	5,842	15,424	114
1967	1	13,269	-	8	1,058	1,048	1,915	2,951	76	3	5,581	17,088	78
1968	-	10,101	-	1	429	353	2,356	2,618	94	3	5,351	18,153	105
1969	-	9,763	-	6	192	401	3,359	2,133	114	1	3,809	18,534	103
1970	-	11,863	-	14	195	1,834	4,594	1,992	69	2	3,920	20,359	118
1971	1	11,244	-	10	140	2,659	4,828	1,789	64	-	4,800	22,260	93
1972	1	13,304	-	7	116	2,353	4,322	1,632	55	1	4,891	24,750	175
1973	-	24,467	-	14	86	4,552	3,872	1,473	54	-	4,375	31,086	217
1974	-	31,802	-	11	104	2,365	3,599	1,431	54	2	2,722	32,067	171
1975	1	23,777	-	10	98	3,253	2,877	1,271	76	-	1,638	32,583	98
1976	-	24,937	-	10	70	6,139	2,645	1,349	65	1	1,089	34,836	37
1977	-	31,047	-	13	73	1,392	2,686	1,290	51	-	1,185	36,794	61
1978	-	29,759	-	15	47	8,006	2,174	1,260	87	1	1,133	36,647	49
1979	-	30,182	-	14	102	869	2,036	1,052	79	-	1,260	36,624	59
1980	1	24,808	-	12	38	250	1,799	1,168	77	1	1,163	34,951	50
1981	-	13,529	-	26	30	34	1,700	931	93	-	1,053	32,524	32
1982	-	12,302	-	14	34	64	1,745	864	81	-	921	32,848	26
1983	-	11,157	-	10	43	8	1,788	790	91	-	731	34,065	19

[1] -Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2] -Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.6
CASE RATES OF CERTAIN REPORTED COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1983
(Rates per 100,000 population)

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB' (ALL FORMS)	MENINGOCOCCAL' INFECTIONS	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	111.8	278.2	28.7	211.6	139.4	840.8		112.4	27.0				
1901	101.5	314.1	206.8	122.0	120.1	188.2		118.5	20.6				
1902	119.8	263.4	283.6	98.3	141.4	479.3		106.4	21.1				
1903	144.6	210.9	249.9	111.9	164.4	352.3		108.2	20.7				
1904	136.2	158.7	223.3	117.5	69.0	403.1		113.6	17.4				
1905	82.5	87.4	114.1	106.1	45.7	231.7		99.0	22.1				
1906	137.4	115.5	46.7	119.2	51.4	278.9		99.9	20.1				
1907	109.0	93.3	63.6	72.5	32.4	450.7		100.2	21.3				
1908	97.3	113.0	84.4	97.2	45.7	174.8		99.0	17.8				
1909	112.2	185.9	55.3	97.2	38.0	326.5		123.5	16.5				
1910	122.2	231.3	118.1	119.6	40.4	495.8		157.1	18.6	3.7			
1911	129.9	178.8	31.0	91.8	65.5	332.8		181.4	16.5	2.3			
1912	110.5	152.0	37.8	95.5	42.1	95.0		65.7	3.0	2.6			
1913	179.5	135.0	65.0	73.4	30.3	299.4		62.6	5.4	1.8			
1914	163.3	119.5	48.4	68.7	57.8	360.1		81.4	6.5	1.6			
1915	135.4	105.0	33.8	60.4	69.7	137.0		112.6	3.3	2.9			
1916	169.2	208.5	47.5	75.6	55.2	365.2		212.8	4.9	18.0			
1917	249.2	419.9	107.7	50.5	94.1	424.3		142.4	2.2	2.7			
1918	175.2	170.0	149.9	38.3	73.3	192.4		104.5	2.7	3.5			
1919	220.4	175.0	66.5	35.0	51.1	248.0		118.1	2.1	4.3	141.7	220.8	5.2
1920	282.4	280.2	131.3	38.7	195.5	609.6		136.1	5.5	1.8	221.3	312.5	7.1
1921	318.9	287.7	119.2	48.5	176.9	80.4		150.8	4.6	12.8	196.0	258.2	4.0
1922	218.1	248.2	31.5	28.4	144.5	310.2		142.8	4.1	1.1	202.4	248.9	2.3
1923	192.1	320.1	57.5	24.4	189.5	747.2		136.1	4.6	1.0	260.7	238.7	5.8
1924	145.3	313.9	109.4	18.9	105.5	442.0		134.6	3.8	15.6	314.2	253.5	4.4
1925	92.2	289.1	18.4	22.6	178.0	242.8		135.9	3.0	2.3	344.7	250.5	2.4
1926	123.0	290.0	12.6	13.3	200.7	913.5		123.2	2.2	2.4	340.1	244.9	2.4
1927	101.9	245.2	32.7	12.9	151.8	184.9		120.4	3.1	6.3	349.9	207.5	2.4
1928	80.8	227.6	29.0	8.5	210.5	586.9		127.7	6.0	1.7	332.6	186.5	2.2
1929	97.7	301.5	51.0	6.6	197.7	381.8		132.2	39.4	3.8	351.4	204.5	7.0
1930	66.2	230.8	49.0	10.4	163.9	580.9		105.9	18.6	4.3	341.5	176.6	3.4
1931	37.5	266.7	18.7	8.7	234.4	127.2		125.6	6.0	23.3	300.2	160.6	3.5
1932	24.1	309.7	4.5	10.4	265.8	855.4		144.2	2.6	2.3	243.0	141.4	2.8
1933	23.2	330.6	0.9	9.1	236.0	436.0		133.4	1.7	1.9	154.9	129.8	1.7
1934	12.3	384.2	1.0	9.7	224.8	130.4		105.1	1.1	4.6	129.5	123.6	2.6
1935	12.8	234.7	0.3	7.0	265.9	1,565.8		91.9	2.2	12.2	127.1	126.2	2.2
1936	13.0	248.5	0.6	5.6	280.7	48.2		101.3	2.4	3.0	125.7	126.9	2.6
1937	16.4	483.2	3.0	4.7	222.6	119.9		126.1	1.7	8.2	169.7	137.8	4.8
1938	12.0	354.9	5.3	5.5	281.5	1,534.8		122.5	1.3	1.1	283.8	136.2	6.6
1939	8.7	303.7	7.1	3.4	172.5	248.3		117.3	0.9	17.3	252.0	122.0	5.5
1940	5.0	197.2	1.4	2.3	223.7	384.4		115.3	0.9	23.4	190.2	145.5	4.1
1941	4.5	161.0	2.1	2.7	303.7	1,301.1		98.8	0.9	5.0	209.1	161.2	6.6
1942	4.4	135.5	0.3	1.3	209.5	154.7		103.3	1.2	2.9	225.0	158.0	5.0

TABLE 4.6 (continued)

Year	DIP-THERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-PX	TYPHOID FEVER	WHOOP-ING COUGH	MEASLES	HEPATI-TIS, ALL TYPES	TB[2] (ALL FORMS)	MENIN-[1] GOCOC-CAL INFEC-TIONS	POLIO	SYPHI-LIS	GONOR-RHEA	CHAN-CROID
1943	5.2	93.8	0.3	2.1	224.8	962.6		121.7	14.1	4.7	296.3	177.1	4.8
1944	7.8	166.7	0.2	1.5	75.3	496.7		119.4	15.9	16.4	321.5	222.9	3.4
1945	11.6	171.2	0.3	1.1	98.2	116.4	2.5	100.7	5.0	4.0	295.2	231.2	4.5
1946	6.7	104.7	0.1	1.5	142.2	740.3	0.6	97.2	3.2	19.1	316.2	221.3	3.6
1947	3.9	79.6	0.0	1.3	172.5	157.8	0.2	106.6	1.9	10.6	251.7	181.1	3.6
1948	2.0	95.8	-	0.8	43.1	693.3	0.1	98.6	1.7	12.5	195.3	152.5	7.5
1949	1.9	139.4	-	0.8	65.4	319.3	0.4	93.7	1.9	45.8	137.6	148.4	5.3
1950	1.3	73.2	-	0.7	144.1	600.2	0.8	86.9	2.1	31.8	138.6	136.2	3.2
1951	0.7	125.0	-	0.5	48.2	232.7	5.0	93.9	2.1	22.4	99.8	129.8	2.9
1952	0.7	124.1	-	0.8	29.7	491.1	4.2	91.7	2.5	58.3	110.0	114.7	0.9
1953	0.2	85.9	-	0.5	42.8	340.5	12.7	82.4	2.2	34.2	82.0	128.3	0.6
1954	0.8	73.2	-	0.4	80.0	579.8	20.2	82.1	2.1	30.9	66.7	141.5	0.7
1955	0.8	81.3	-	0.3	58.7	330.0	17.2	75.8	2.3	16.3	67.2	142.4	0.8
1956	2.9	97.8	-	0.7	25.4	558.4	10.8	73.4	2.4	8.7	63.7	127.7	0.7
1957	1.7	92.2	-	0.2	17.5	244.4	8.4	64.2	2.2	6.4	58.6	108.0	1.2
1958	0.1	68.4	-	0.2	15.7	526.9	8.7	71.0	2.9	15.6	54.2	109.6	2.3
1959	0.0	118.7	-	0.1	37.7	153.7	14.3	59.6	1.8	5.6	43.0	100.9	1.7
1960	0.1	118.7	-	0.2	14.4	462.2	27.0	52.8	2.2	1.1	46.6	107.0	1.4
1961	0.0	105.6	-	0.1	8.1	371.9	58.3	48.6	3.2	0.5	41.9	120.3	1.3
1962	0.1	102.2	-	0.2	22.1	318.7	41.3	43.8	1.8	0.3	54.6	146.8	0.9
1963	0.1	149.0	-	0.2	17.6	607.1	33.1	41.1	1.3	0.2	68.6	137.5	1.2
1964	0.0	212.7	-	0.2	11.8	381.4	30.5	37.6	1.0	0.0	64.4	148.5	1.3
1965	-	178.3	-	0.1	7.5	343.1	32.0	37.4	1.3	0.0	68.8	174.6	1.2
1966	0.0	166.7	-	0.1	7.9	183.4	31.1	39.2	1.6	0.0	70.3	185.5	1.4
1967	0.0	154.0	-	0.1	12.3	12.2	22.2	34.2	0.9	0.0	64.8	198.4	0.9
1968	-	116.4	-	0.0	4.9	4.1	27.2	30.2	1.1	0.0	61.7	209.3	1.2
1969	-	111.8	-	0.1	2.2	4.6	38.5	24.4	1.3	0.0	43.6	212.2	1.2
1970	-	133.7	-	0.2	2.2	20.7	51.8	22.4	0.8	0.0	44.2	229.4	1.3
1971	0.0	125.3	-	0.1	1.6	29.6	53.8	19.9	0.7	-	53.5	248.1	1.0
1972	0.0	147.4	-	0.1	1.3	26.1	47.9	18.1	0.6	0.0	54.2	274.2	1.9
1973	-	269.7	-	0.2	0.9	50.2	42.7	16.2	0.6	-	48.2	342.7	2.4
1974	-	349.1	-	0.1	1.1	26.0	39.5	15.7	0.6	0.0	29.9	352.0	1.9
1975	0.0	261.1	-	0.1	1.1	35.7	31.6	14.0	0.8	-	18.0	357.7	1.1
1976	-	273.5	-	0.1	0.8	67.3	29.0	14.8	0.7	0.0	11.9	382.1	0.4
1977	-	339.1	-	0.1	0.8	15.2	29.3	14.1	0.6	-	12.9	401.8	0.7
1978	-	323.4	-	0.2	0.5	87.0	23.6	13.7	0.9	0.0	12.3	398.3	0.5
1979	-	326.3	-	0.2	1.1	9.4	22.0	11.4	0.9	-	13.6	396.0	0.6
1980	0.0	267.8	-	0.1	0.4	2.7	19.4	12.6	0.8	0.0	12.6	377.4	0.5
1981	-	145.9	-	0.3	0.3	0.4	18.3	10.0	1.0	-	11.4	350.9	0.3
1982	-	133.3	-	0.2	0.4	0.7	18.9	9.4	0.9	-	10.0	356.0	0.3
1983	-	121.9	-	0.1	0.5	0.1	19.5	8.6	1.0	-	8.0	372.1	0.2

[1] -Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2] -Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.7
NUMBER OF DEATHS AND DEATH RATES FOR CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1983
(Rates per 100,000 population)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis' (all forms)		Poliomyelitis		Syphilis'		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	529	21.9	272	11.2	9	0.4	869	35.9	208	8.6	342	14.1	2,018	83.4	2,500	103.3						
1901	502	20.4	312	12.7	27	1.1	645	26.2	163	6.6	79	3.2	2,152	87.5	2,548	103.6			88	3.6		
1902	504	20.2	277	11.1	42	1.7	608	24.3	289	11.6	238	9.5	2,088	83.6	2,462	98.5			114	4.6		
1903	686	27.0	200	7.9	29	1.1	606	23.9	383	15.1	176	6.9	2,155	84.9	2,562	101.0			130	5.2		
1904	515	20.0	210	8.1	26	1.0	641	24.9	148	5.7	194	7.5	2,306	89.5	2,761	107.2			101	4.0		
1905	478	18.3	123	4.7	74	2.8	636	24.3	131	5.0	123	4.7	2,288	87.5	2,732	104.5			89	3.5		
1906	472	17.8	227	8.6	3	0.1	721	27.2	469	17.7	251	9.5	2,303	86.8	2,737	103.1			89	3.4		
1907	421	15.6	159	5.9	8	0.3	594	22.1	223	8.3	256	9.5	2,338	86.8	2,728	101.3			94	3.6		
1908	343	12.6	194	7.1	11	0.4	687	25.1	305	11.2	121	4.4	2,249	82.3	2,706	99.0			118	4.5		
1909	395	14.3	275	9.9	4	0.1	653	23.6	217	7.8	270	9.7	2,237	80.7	2,629	94.9			127	4.8		
1910	495	17.6	297	10.6	121	4.3	654	23.3	318	11.3	251	8.9	2,273	80.9	2,756	98.1	52	1.9	65	2.3		
1911	473	16.3	208	7.2	7	0.2	551	19.0	254	8.8	200	6.9	2,284	78.9	2,766	95.5	55	1.9	104	3.6		
1912	465	15.6	186	6.2	3	0.1	534	17.9	252	8.5	118	4.0	2,289	76.8	2,744	92.0	48	1.7	90	3.1		
1913	676	22.0	283	9.2	5	0.2	538	17.5	292	9.5	258	8.4	2,243	73.1	2,703	88.1	43	1.5	136	4.6		
1914	507	16.1	177	5.6	2	0.1	400	12.7	304	9.6	180	5.7	2,325	73.7	2,799	88.8	41	1.4	160	5.3		
1915	354	10.9	107	3.3	5	0.2	353	10.9	236	7.3	101	3.1	2,527	78.0	2,986	92.2	36	1.2	163	5.3		
1916	507	15.2	177	5.3	2	0.1	424	12.8	228	6.9	363	10.9	2,573	77.4	3,070	92.3	141	4.6	206	6.7		
1917	851	24.9	340	10.0	9	0.3	386	11.3	360	10.6	259	7.6	2,779	81.5	3,310	97.0	44	1.4	224	7.1		
1918	686	19.6	181	5.2	18	0.5	337	9.6	496	14.2	270	7.7	3,059	87.5	3,612	103.3	58	1.8	290	9.1		
1919	764	21.3	179	5.0	10	0.3	272	7.6	172	4.8	183	5.1	2,620	73.1	3,127	87.3	80	2.2	299	8.2		
1920	888	24.2	305	8.3	14	0.4	297	8.1	511	13.9	436	11.9	2,645	72.1	3,149	85.8	30	0.8	314	8.4		
1921	954	25.2	334	8.8	12	0.3	285	7.5	316	8.3	58	1.5	2,285	60.4	2,736	72.3	100	2.6	226	5.9	14	0.4
1922	620	15.9	217	5.6	20	0.5	192	4.9	232	5.9	232	5.9	2,232	57.2	2,654	68.0	21	0.5	186	4.7	6	0.2
1923	675	16.8	304	7.6	13	0.3	202	5.0	323	8.0	258	6.4	2,410	59.9	2,837	70.6	18	0.5	262	6.8	5	0.1
1924	470	11.4	265	6.4	226	5.5	149	3.6	169	4.1	221	5.3	2,474	59.8	2,952	71.3	116	3.0	271	7.0	13	0.3
1925	358	8.4	208	4.9	22	0.5	157	3.7	260	6.1	69	1.6	2,410	56.6	2,830	66.5	31	0.7	282	6.6	27	0.6
1926	677	15.5	235	5.4	4	0.1	119	2.7	355	8.1	577	13.2	2,601	59.5	3,041	69.5	34	0.8	327	7.5	12	0.3
1927	516	11.5	168	3.7	-	-	94	2.1	201	4.5	67	1.5	2,514	56.0	2,952	65.7	69	1.5	305	6.8	16	0.4
1928	384	8.3	178	3.9	2	0.0	83	1.8	219	4.8	303	6.6	2,647	57.4	3,108	67.5	27	0.6	384	8.4	19	0.4
1929	498	10.5	145	3.1	9	0.2	81	1.7	255	5.4	146	3.1	2,685	56.8	3,140	66.5	50	1.1	397	8.4	19	0.4
1930	299	6.2	130	2.7	9	0.2	87	1.8	176	3.6	231	4.8	2,443	50.5	2,912	60.1	39	0.8	395	8.2	12	0.2
1931	172	3.5	122	2.5	4	0.1	73	1.5	190	3.9	28	0.6	2,263	46.3	2,660	54.5	108	2.2	361	7.4	3	0.1
1932	106	2.2	112	2.3	1	0.0	56	1.1	199	4.0	183	3.7	2,101	42.7	2,463	50.0	23	0.5	377	7.7	2	0.0
1933	112	2.3	157	3.2	-	-	50	1.0	153	3.1	111	2.2	1,996	40.2	2,348	47.3	5	0.1	327	6.6	7	0.1
1934	38	0.8	171	3.4	-	-	65	1.3	141	2.8	36	0.7	1,909	38.1	2,199	43.9	25	0.5	402	8.0	10	0.2
1935	58	1.1	98	1.9	-	-	34	0.7	132	2.6	184	3.6	1,741	34.5	2,044	40.5	32	0.6	393	7.8	3	0.1
1936	52	1.0	114	2.2	-	-	37	0.7	107	2.1	12	0.2	1,816	35.7	2,100	41.3	21	0.4	394	7.7	6	0.1
1937	72	1.4	148	2.9	1	0.0	29	0.6	132	2.6	11	0.2	1,860	36.2	2,119	41.3	51	1.0	401	7.8	8	0.2
1938	44	0.9	87	1.7	-	-	23	0.4	116	2.2	100	1.9	1,633	31.6	1,866	36.1	10	0.2	401	7.8	8	0.2
1939	25	0.5	69	1.3	-	-	25	0.5	76	1.5	29	0.6	1,651	31.7	1,881	36.1	40	0.8	389	7.5	4	0.1
1940	20	0.4	41	0.8	1	0.0	11	0.2	59	1.1	19	0.4	1,547	29.4	1,752	33.3	72	1.4	591	11.2	3	0.0
1941	18	0.3	32	0.6	1	0.0	14	0.3	91	1.7	65	1.2	1,532	28.2	1,723	31.7	18	0.3	537	9.9	1	0.0
1942	24	0.4	23	0.4	-	-	5	0.1	72	1.3	8	0.1	1,630	29.4	1,827	33.0	10	0.2	559	10.1	7	0.1

Table 4.7 (continued)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis[2] (all forms)		Polio-myelitis		Syphilis[1]		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1943	21	0.4	11	0.2	-	-	9	0.2	101	1.9	89	1.7	1,588	29.5	1,802	33.5	27	0.5	579	10.8	3	0.0
1944	32	0.6	7	0.1	1	0.0	7	0.1	33	0.6	49	0.9	1,544	28.7	1,748	32.5	45	0.8	543	10.1	2	0.0
1945	46	0.8	9	0.2	-	-	3	0.1	36	0.7	10	0.2	1,591	29.3	1,758	32.3	20	0.4	527	9.7	2	0.0
1946	27	0.5	3	0.1	-	-	6	0.1	44	0.8	47	0.8	1,645	28.8	1,843	32.3	89	1.6	547	9.6	-	-
1947	23	0.4	6	0.1	-	-	5	0.1	63	1.0	5	0.1	1,483	24.4	1,643	27.1	29	0.5	502	8.3	3	0.0
1948	8	0.1	1	0.0	-	-	4	0.1	9	0.1	43	0.7	1,395	22.5	1,561	25.2	54	0.9	512	8.3	-	-
1949	11	0.2	4	0.1	-	-	1	0.0	22	0.3	33	0.5	1,254	19.7	1,400	22.0	216	3.4	455	7.2	-	-
1950	2	0.0	1	0.0	-	-	5	0.1	28	0.4	28	0.4	1,134	17.8	1,270	19.9	128	2.0	325	5.1	1	0.0
1951	6	0.1	-	-	-	-	1	0.0	21	0.3	11	0.2	1,049	16.0	1,154	17.6	67	1.0	299	4.6	1	0.0
1952	2	0.0	-	-	-	-	-	-	8	0.1	17	0.3	689	10.3	775	11.6	213	3.2	174	2.6	2	0.0
1953	2	0.0	1	0.0	-	-	-	-	11	0.2	16	0.2	536	7.8	607	8.9	108	1.6	182	2.7	1	0.0
1954	3	0.0	3	0.0	-	-	-	-	17	0.2	17	0.2	471	6.7	530	7.5	89	1.3	139	2.0	2	0.0
1955	1	0.0	1	0.0	-	-	1	0.0	8	0.1	10	0.1	435	6.0	477	6.6	32	0.4	115	1.6	1	0.0
1956	6	0.1	3	0.0	-	-	-	-	6	0.1	26	0.3	426	5.7	466	6.2	22	0.3	114	1.5	4	0.1
1957	1	0.0	-	-	-	-	-	-	6	0.1	23	0.3	403	5.2	442	5.7	15	0.2	105	1.3	4	0.1
1958	-	-	-	-	-	-	-	-	1	0.0	18	0.2	357	4.5	395	5.0	37	0.5	84	1.1	8	0.1
1959	1	0.0	2	0.0	-	-	1	0.0	5	0.1	11	0.1	335	4.2	370	4.6	17	0.2	84	1.1	4	0.1
1960	2	0.0	1	0.0	-	-	-	-	1	0.0	17	0.2	364	4.7	390	5.0	4	0.1	79	1.0	7	0.1
1961	1	0.0	1	0.0	-	-	-	-	2	0.0	13	0.2	307	3.9	332	4.2	-	-	71	0.9	7	0.1
1962	2	0.0	1	0.0	-	-	-	-	2	0.0	8	0.1	307	3.9	331	4.2	2	0.0	94	1.2	3	0.0
1963	-	-	-	-	-	-	-	-	-	-	27	0.3	276	3.4	299	3.7	1	0.0	72	0.9	1	0.0
1964	-	-	-	-	-	-	-	-	2	0.0	11	0.1	288	3.6	315	3.9	1	0.0	66	0.8	3	0.0
1965	-	-	-	-	-	-	-	-	-	-	5	0.1	261	3.2	285	3.5	-	-	65	0.8	2	0.0
1966	1	0.0	-	-	-	-	-	-	-	-	7	0.1	284	3.4	301	3.6	-	-	63	0.8	-	-
1967	-	-	-	-	-	-	-	-	-	-	3	0.0	206	2.4	226	2.6	-	-	44	0.5	1	0.0
1968	-	-	1	0.0	-	-	-	-	-	-	-	-	203	2.3	262	3.0	2	0.0	29	0.3	-	-
1969	-	-	-	-	-	-	-	-	-	-	-	-	147	1.7	201	2.3	-	-	26	0.3	1	0.0
1970	-	-	2	0.0	-	-	-	-	-	-	1	0.0	134	1.5	180	2.0	-	-	17	0.2	2	0.0
1971	-	-	4	0.0	-	-	-	-	-	-	-	-	122	1.4	173	1.9	-	-	18	0.2	-	-
1972	-	-	1	0.0	-	-	1	0.0	-	-	-	-	111	1.2	157	1.7	1	0.0	12	0.1	-	-
1973	-	-	-	-	-	-	-	-	1	0.0	2	0.0	101	1.1	138	1.5	3	0.0	12	0.1	-	-
1974	-	-	1	0.0	-	-	-	-	2	0.0	-	-	109	1.2	142	1.6	3	0.0	11	0.1	-	-
1975	-	-	-	-	-	-	-	-	1	0.0	1	0.0	81	0.9	110	1.2	5	0.1	10	0.1	1	0.0
1976	-	-	-	-	-	-	-	-	-	-	-	-	80	0.9	102	1.1	6	0.1	11	0.1	-	-
1977	-	-	1	0.0	-	-	-	-	-	-	-	-	67	0.7	97	1.1	6	0.1	3	0.0	-	-
1978	-	-	-	-	-	-	-	-	1	0.0	1	0.0	60	0.7	80	0.9	2	0.0	5	0.1	-	-
1979	-	-	-	-	-	-	-	-	-	-	-	-	47	0.5	62	0.7	2	0.0	9	0.1	-	-
1980	-	-	-	-	-	-	-	-	-	-	-	-	51	0.6	61	0.7	-	-	1	0.0	1	0.0
1981	-	-	-	-	-	-	1	0.0	-	-	-	-	41	0.4	53	0.6	-	-	4	0.0	1	0.0
1982	-	-	-	-	-	-	-	-	-	-	1	0.0	30	0 3	41	0.4	-	-	-	-	-	-
1983	-	-	1	0.0	-	-	-	-	-	-	1	0.0	28	0.3	39	0.4	-	-	3	0.0	-	-

[1] -From 1901 through 1920, syphilis includes all other venereal diseases, beginning with 1968 excludes aortic aneurysms not specified as syphilitic.

[2] -Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, deaths and rates prior to 1975 are not directly comparable to the fig[illegible]s in 1975 and later years.

TABLE 4.8
NUMBER OF DEATHS AND DEATH RATES BY SPECIFIED CAUSES, MICHIGAN RESIDENTS, 1900-1983
(Rates per 100,000 population)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	2,836	117.1	1,460	60.3	2,136	88.2	1,740	71.9			224	9.3	2,388	98.6				
1901	3,040	123.6	1,484	60.3	2,147	87.3	1,901	77.3			264	10.7	2,901	117.9				
1902	3,302	132.1	1,483	59.3	2,097	83.9	1,796	71.9			289	11.6	2,637	105.5				
1903	3,702	145.9	1,694	66.8	2,321	91.5	2,017	79.5			265	10.4	2,607	102.7				
1904	3,981	154.5	1,728	67.1	2,431	94.3	2,035	79.0			298	11.6	2,646	102.7				
1905	3,715	142.0	1,693	64.7	2,405	91.9	2,034	77.8			267	10.2	2,417	92.4				
1906	3,933	148.2	1,736	65.4	2,554	96.2	2,126	80.1			311	11.7	2,621	98.7				
1907	4,269	158.5	1,747	64.9	2,690	99.9	2,209	82.0			352	13.1	3,018	112.0				
1908	4,202	153.8	1,921	70.3	2,630	96.3	2,036	74.5			359	13.1	2,313	84.7				
1909	4,354	157.1	1,948	70.3	2,739	98.8	1,903	68.7			374	13.5	2,265	81.7				
1910	4,581	163.0	2,105	74.9	3,091	110.0	2,158	76.8	49	1.7	398	14.2	2,785	99.1	282	10.0		
1911	4,639	160.2	2,142	74.0	2,916	100.7	2,121	73.2	44	1.5	373	12.9	2,763	95.4				
1912	5,324	178.5	2,291	76.8	2,707	90.8	2,005	67.2	75	2.5	448	15.0	2,796	93.8				
1913	4,908	160.0	2,388	77.8	2,834	92.4	2,333	76.1	132	4.3	483	15.7	3,082	100.5				
1914	5,124	162.5	2,414	76.6	2,993	94.9	2,108	66.8	120	3.8	503	16.0	2,909	92.2				
1915	5,538	171.0	2,567	79.2	3,384	104.5	2,219	68.5	190	5.9	498	15.4	3,229	99.7				
1916	5,819	175.0	2,710	81.5	3,559	107.0	2,853	85.8	257	7.7	500	15.0	3,698	111.2				
1917	6,103	178.9	2,765	81.1	3,703	108.6	2,925	85.8	335	9.8	569	16.7	4,455	130.6				
1918	6,091	174.2	2,931	83.8	3,493	99.9	2,599	74.3	279	8.0	591	16.9	7,238	207.0				
1919	5,651	157.7	2,990	83.5	3,483	97.2	2,612	72.9	328	9.2	559	15.6	4,081	113.9				
1920	6,732	183.5	3,158	86.1	3,876	105.7	2,646	72.1	397	10.8	577	15.7	5,794	157.9				
1921	6,176	163.1	3,373	89.1	3,931	103.8	2,476	65.4	403	10.6	586	15.5	2,849	75.3	261	6.9		
1922	6,897	176.7	3,481	89.2	4,041	103.5	2,475	63.4	529	13.6	650	16.7	3,728	95.5	267	6.8		
1923	7,266	180.7	3,545	88.2	4,420	109.9	2,826	70.3	677	16.8	635	15.8	4,719	117.4	251	6.2		
1924	6,985	168.8	3,824	92.4	4,241	102.5	3,090	74.7	1,001	24.2	661	16.0	3,332	80.5	256	6.2		
1925	7,540	177.2	3,858	90.7	4,623	108.6	3,278	77.0	1,103	25.9	746	17.5	3,294	77.4	319	7.5		
1926	8,281	189.4	4,087	93.5	4,663	106.6	3,557	81.3	1,221	27.9	743	17.0	4,440	101.5	326	7.5		
1927	8,780	195.5	4,264	95.0	4,378	97.5	3,634	80.9	1,389	30.9	819	18.2	3,543	78.9	340	7.6		
1928	9,786	212.4	4,381	95.1	4,718	102.4	3,704	80.4	1,429	31.0	905	19.6	4,518	98.1	373	8.1		
1929	10,185	215.6	4,571	96.7	4,694	99.3	3,913	82.8	1,552	32.8	935	19.8	4,216	89.2	361	7.6		
1930	9,947	205.4	4,572	94.4	4,533	93.6	3,805	78.6	1,572	32.5	880	18.2	3,321	68.6	329	6.8	1,047	21.6
1931	10,206	209.0	4,763	97.5	4,388	89.8	3,630	74.3	1,516	31.0	950	19.5	2,883	59.0	365	7.5	1,005	20.6
1932	11,162	226.6	4,935	100.2	4,518	91.7	3,179	64.5	1,229	25.0	1,121	22.8	3,238	65.7	386	7.8	948	19.2
1933	11,509	231.7	5,055	101.8	4,318	86.9	3,304	66.5	1,278	25.7	1,103	22.2	2,756	55.5	354	7.1	966	19.5
1934	11,824	236.1	5,370	107.2	4,485	89.6	3,774	75.4	1,511	30.2	1,100	22.0	3,466	69.2	378	7.5	914	18.3
1935	12,456	246.7	5,399	106.9	4,420	87.5	3,771	74.7	1,676	33.2	1,228	24.3	3,801	75.3	368	7.3	897	17.8
1936	13,374	262.7	5,752	113.0	4,705	92.4	5,246	103.1	1,924	37.8	1,266	24.9	4,096	80.5	446	8.8	997	19.6
1937	13,233	257.8	5,732	111.7	4,378	85.3	4,580	89.2	2,187	42.6	1,255	24.5	4,098	79.8	430	8.4	1,168	22.8
1938	13,887	268.4	6,059	117.1	4,543	87.8	3,608	69.7	1,490	28.8	1,283	24.8	2,869	55.5	424	8.2	869	16.8
1939	14,898	285.7	6,296	120.7	4,415	84.7	3,761	72.1	1,553	29.8	1,360	26.1	2,803	53.8	387	7.4	918	17.6
1940	15,480	294.5	6,513	123.9	4,690	89.2	3,961	75.4	1,743	33.2	1,408	26.8	2,478	47.1	468	8.9	941	17.9
1941	15,761	289.8	6,551	120.5	4,698	86.4	4,450	81.8	2,156	39.6	1,382	25.4	2,235	41.1	450	8.3	906	16.7
1942	16,016	289.2	6,646	120.0	4,841	87.4	3,685	66.5	1,368	24.7	1,448	26.1	2,349	42.4	535	9.7	1,015	18.3
1943	17,816	331.3	7,127	132.5	5,311	98.8	3,480	64.7	1,025	19.1	1,535	28.5	2,931	54.5	518	9.6	1,092	20.3
1944	17,004	316.2	7,277	135.3	4,954	92.1	3,350	62.3	1,103	20.5	1,554	28.9	2,369	44.1	471	8.8	980	18.2

Table 4.8 (continued)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No	Rate
1945	17,421	320.5	7,486	137.7	5,295	97.4	3,432	63.1	1,199	22.1	1,561	28.7	1,932	35.5	535	9.8	970	17.8
1946	17,691	309.9	7,845	137.4	5,224	91.5	3,776	66.1	1,506	26.4	1,530	26.8	1,891	33.1	554	9.7	933	16.3
1947	18,412	303.4	8,188	134.9	5,426	89.4	3,848	63.4	1,499	24.7	1,618	26.7	2,089	34.4	697	11.5	1,031	17.0
1948	18,726	302.3	8,336	134.6	5,272	85.1	4,017	64.8	1,545	24.9	1,771	28.6	1,853	29.9	771	12.4	1,085	17.5
1949	19,137	301.3	8,697	136.9	5,438	85.6	3,838	60.4	1,493	23.5	1,884	29.7	1,885	29.7	730	11.5	1,135	17.9
1950	20,521	322.1	8,685	136.3	6,376	100.1	3,783	59.4	1,680	26.4	1,438	22.6	1,358	21.3	616	9.7	1,296	20.3
1951	21,118	322.6	9,187	140.4	6,579	100.5	3,916	59.8	1,806	27.6	1,374	21.0	1,619	24.7	569	8.7	1,312	20.0
1952	21,247	316.8	9,256	138.0	6,521	97.2	3,901	58.2	1,815	27.1	1,339	20.0	1,571	23.4	599	8.9	1,294	19.3
1953	22,425	327.3	9,904	144.5	7,045	102.8	4,375	63.8	2,051	29.9	1,419	20.7	1,538	22.4	715	10.4	1,270	18.5
1954	22,362	318.4	10,105	143.9	6,964	99.1	3,948	56.2	1,916	27.3	1,469	20.9	1,380	19.6	677	9.6	1,170	16.7
1955	23,440	323.9	10,297	142.3	7,362	101.7	4,213	58.2	2,129	29.4	1,415	19.6	1,538	21.3	805	11.1	1,237	17.1
1956	24,661	328.1	10,489	139.6	7,114	94.7	3,925	52.2	1,826	24.3	1,443	19.2	1,723	22.9	788	10.5	1,251	16.6
1957	25,369	325.1	10,810	138.5	7,632	97.8	3,643	46.7	1,680	21.5	1,510	19.4	2,045	26.2	861	11.0	1,248	16.0
1958	25,215	320.6	10,946	139.2	7,547	95.9	3,306	42.0	1,466	18.6	1,595	20.3	2,076	26.4	818	10.4	1,300	16.5
1959	25,323	318.1	11,113	139.6	7,700	96.7	3,666	46.1	1,587	19.9	1,715	21.5	1,810	22.7	815	10.2	1,403	17.6
1960	25,728	328.9	11,331	144.8	7,682	98.2	3,688	47.1	1,710	21.9	1,784	22.8	2,002	25.6	840	10.7	1,352	17.3
1961	25,519	322.9	11,476	145.2	7,745	98.0	3,692	46.7	1,656	21.0	1,778	22.5	1,692	21.4	858	10.9	1,448	18.3
1962	27,226	342.9	11,752	148.0	7,783	98.0	3,758	47.3	1,668	21.0	1,908	24.0	1,824	23.0	859	10.8	1,477	18.6
1963	27,483	342.3	12,078	150.4	8,168	101.7	4,033	50.2	2,005	25.0	2,049	25.5	1,995	24.8	958	11.9	1,652	20.6
1964	27,496	339.5	12,087	149.2	7,940	98.0	4,416	54.5	2,286	28.2	2,055	25.4	1,714	21.2	995	12.3	1,559	19.2
1965	28,134	343.1	12,419	151.5	7,769	94.8	4,494	54.8	2,271	27.7	2,153	26.3	1,987	24.2	1,068	13.0	1,726	21.1
1966	28,277	340.1	12,506	150.4	7,732	93.0	4,737	57.0	2,407	29.0	2,243	27.0	2,026	24.4	1,152	13.9	1,745	21.0
1967	28,757	333.8	13,030	151.2	7,846	91.1	4,519	52.4	2,265	26.3	2,182	25.3	1,973	22.9	1,240	14.4	1,730	20.1
1968	29,680	342.1	13,292	153.2	7,913	91.2	4,603	53.1	2,466	28.4	2,298	26.5	2,341	27.0	1,259	14.5	1,262	14.5
1969	29,396	336.6	13,328	152.6	7,706	88.2	4,766	54.6	2,579	29.5	2,188	25.1	2,229	25.5	1,430	16.4	1,289	14.8
1970	29,204	329.1	13,551	152.7	7,691	86.7	4,428	49.9	2,309	26.0	2,180	24.6	2,004	22.6	1,558	17.6	1,174	13.2
1971	30,095	335.4	13,594	151.5	7,826	87.2	4,426	49.3	2,274	25.3	2,103	23.4	1,981	22.1	1,657	18.5	1,187	13.2
1972	30,865	342.0	14,045	155.6	7,999	88.6	4,566	50.6	2,450	27.1	2,222	24.6	2,009	22.3	1,778	19.7	1,153	12.8
1973	29,944	330.1	14,220	156.7	7,987	88.0	4,630	51.0	2,389	26.3	2,074	22.9	1,958	21.6	1,711	18.9	1,142	12.6
1974	29,220	320.8	14,241	156.3	7,645	83.9	4,211	46.2	1,929	21.2	1,940	21.3	1,637	18.0	1,650	18.1	1,187	13.0
1975	28,298	310.7	14,445	158.6	7,262	79.7	4,002	43.9	1,841	20.2	1,819	20.0	1,690	18.6	1,574	17.3	1,119	12.3
1976	29,233	320.6	14,880	163.2	7,354	80.7	3,912	42.9	1,993	21.9	1,719	18.9	1,812	19.9	1,486	16.3	1,207	13.2
1977	28,895	315.6	15,125	165.2	6,818	74.5	3,945	43.1	1,993	21.8	1,615	17.6	1,639	17.9	1,356	14.8	1,164	12.7
1978	29,406	319.6	15,249	165.7	6,520	70.9	3,970	43.1	2,138	23.2	1,551	16.9	1,828	19.9	1,351	14.7	1,146	12.5
1979	29,296	316.7	15,409	166.6	6,067	65.6	3,839	41.5	1,967	21.3	1,449	15.7	1,454	15.7	1,367	14.8	1,173	12.7
1980	29,790	321.6	15,828	170.9	6,164	66.6	3,627	39.2	1,880	20.3	1,467	15.8	1,712	18.5	1,362	14.7	1,254	13.5
1981	30,172	325.5	16,142	174.1	6,121	66.0	3,390	36.6	1,727	18.6	1,487	16.0	1,644	17.7	1,253	13.5	1,270	13.7
1982	30,099	326.2	16,566	179.5	5,839	63.3	3,113	33.7	1,555	16.9	1,347	14.6	1,665	18.0	1,244	13.5	1,284	13.9
1983	30,412	332.2	16,785	183.3	5,721	62.5	2,947	32.2	1,419	15.5	1,470	16.1	2,007	21.9	1,250	13.7	1,269	13.9

[1] -Cancer includes leukemias, aleukemias, and Hodgkin's disease beginning with 1921.

[2] -Cerebrovascular disease was called Vascular Lesions Affecting-Central Nervous System prior to 1968.

[3] -Accidents exclude injuries undetermined whether accidentally or purposely inflicted since 1968.

[4] -Motor vehicle accidents do not include collision with heavier vehicles from 1910 through 1922. Motorcycle accidents are included beginning 1923.

[5] -Chronic liver disease and cirrhosis was called cirrhosis of the liver prior to 1979.

[6] -Atherosclerosis was called General Arteriosclerosis prior to 1968 and was called Arteriosclerosis from 1968-1978.

Table 4.9
Selected Vital Statistics By County, Michigan Residents, 1983

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Michigan	9155480	133026	9426	76639	1573	1067	1753	843	78910	37991
Alcona	9969	98	5	126	1	-	-	-	82	31
Alger	8683	131	8	105	-	-	2	2	68	29
Allegan	82581	1322	58	658	8	5	6	3	766	364
Alpena	31633	438	22	290	3	2	6	4	286	121
Antrim	16678	223	15	182	1	-	-	-	130	70
Arenac	15174	205	12	166	4	3	4	1	133	29
Baraga	8446	107	8	112	-	-	1	1	57	31
Barry	45881	662	35	337	8	4	6	3	413	200
Bay	117444	1723	121	968	24	15	18	6	1044	432
Benzie	11029	175	7	123	1	-	-	-	147	21
Berrien	165741	2538	199	1471	41	24	33	13	1630	781
Branch	39057	650	45	388	8	5	6	2	409	190
Calhoun	139965	1940	154	1317	35	25	33	13	1291	733
Cass	47102	665	52	425	12	6	9	4	402	239
Charlevoix	19822	326	15	206	4	2	4	2	220	91
Cheboygan	21190	330	18	186	3	-	2	2	217	90
Chippewa	29071	367	24	302	7	4	7	3	255	114
Clare	24426	350	19	292	12	2	4	2	228	117
Clinton	54844	859	39	308	4	3	5	3	444	186
Crawford	9775	168	11	97	3	2	4	2	119	48
Delta	39565	584	16	338	4	3	7	5	372	139
Dickinson	25385	357	14	329	4	3	3	1	266	97
Eaton	88054	1222	71	561	11	7	22	15	739	375
Emmet	23770	345	15	240	2	1	3	2	217	117
Genesee	443681	6660	534	3385	94	64	89	38	4165	2200
Gladwin	21117	322	20	207	3	2	6	4	184	15
Gogebic	19549	190	8	252	2	1	2	1	183	71
Grand Traverse	56663	882	36	429	7	7	13	6	682	291
Gratiot	39909	628	35	407	8	6	11	5	373	171
Hillsdale	41723	596	43	367	7	6	6	3	345	245
Houghton	38790	499	25	424	6	2	2	-	304	115
Huron	35707	543	23	378	6	4	9	7	272	130
Ingham	275341	4365	253	1641	46	30	64	38	2876	1292
Ionia	52321	888	42	383	9	4	10	8	471	203
Iosco	30633	569	44	305	2	1	5	5	321	136
Iron	13588	177	9	221	2	2	3	1	140	45
Isabella	54789	737	44	299	5	3	7	4	453	179
Jackson	148003	2006	119	1313	29	18	28	14	1227	646
Kalamazoo	217630	2989	198	1539	45	30	52	27	2130	1118
Kalkaska	11341	211	11	90	3	1	2	1	130	66
Kent	460394	8215	496	3578	87	60	94	44	4930	2123
Keweenaw	2001	21	-	32	-	-	-	-	17	1

Selected Vital Statistics By County, Michigan Residents, 1983 (continued)

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Lake	8526	104	6	121	1	-	2	2	56	11
Lapeer	68664	991	59	432	16	13	13	3	618	302
Leelanau	14240	193	9	135	3	1	2	1	120	49
Lenawee	88138	1352	73	717	10	8	23	18	774	416
Livingston	97178	1337	86	590	9	6	20	14	855	465
Luce	6014	78	6	53	-	-	1	1	62	24
Mackinac	10041	142	8	126	4	2	2	1	108	17
Macomb	687583	8957	566	4978	78	63	98	46	5754	3081
Manistee	22211	250	13	286	4	3	4	2	192	90
Marquette	72694	1202	72	522	5	3	12	10	704	356
Mason	26369	348	30	295	11	6	7	2	236	100
Mecosta	36665	411	28	277	4	3	7	5	288	100
Menominee	25519	389	19	284	5	5	3	-	273	25
Midland	74274	1136	56	438	10	10	16	8	656	302
Missaukee	10299	180	12	86	1	-	1	1	88	40
Monroe	128666	1813	119	987	19	12	22	12	1107	538
Montcalm	49348	781	45	454	5	3	6	3	546	230
Montmorency	7886	103	2	96	1	1	1	-	54	26
Muskegon	156380	2482	181	1334	21	17	23	6	1516	786
Newaygo	35862	550	29	308	4	3	8	5	382	140
Oakland	1006273	13304	803	7377	124	89	141	61	9379	5142
Oceana	21588	382	16	202	1	-	3	3	234	105
Ogemaw	16481	253	13	216	1	1	4	3	191	63
Ontonagon	10000	116	4	102	-	-	-	-	84	29
Osceola	19677	312	15	192	3	2	3	3	193	-
Oscoda	6792	112	4	109	-	-	-	-	70	14
Otsego	15283	265	15	154	1	1	2	1	172	40
Ottawa	161007	2759	107	1028	20	13	26	13	1496	78
Presque Isle	13982	190	12	154	2	1	3	2	91	36
Roscommon	17771	209	18	225	1	-	-	-	132	82
Saginaw	220831	3267	267	1711	40	30	48	21	1906	889
St. Clair	138102	1966	123	1190	23	13	30	20	1242	592
St. Joseph	56751	891	41	482	14	11	22	12	581	274
Sanilac	39488	634	35	378	2	-	7	7	321	146
Schoolcraft	8394	118	4	97	1	1	3	2	93	25
Shiawassee	68651	1000	51	458	7	2	6	4	628	317
Tuscola	55092	768	39	434	7	6	8	3	492	249
Van Buren	67077	1040	68	607	15	11	18	8	586	446
Washtenaw	269105	3784	223	1460	42	20	46	32	2473	1271
Wayne	2252102	32174	3199	22506	494	347	519	210	14748	7260
Wexford	26011	399	27	258	2	2	1	-	271	143
Co. Not Stated	-	1	-	3	1	1	4	3	-	-

[1] By county of occurrence rather than county of residence.

Table 4.10
Selected Vital Statistics Rates By County, Michigan Residents, 1983

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS[1]	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[2]	DIVORCES[2]
Michigan	14.5	70.9	8.4	11.8	8.0	13.1	6.3	17.2	8.3
Alcona	9.8	51.0	12.6	10.2	-	-	-	16.5	6.2
Alger	15.1	61.1	12.1	-	-	15.0	15.0	15.7	6.7
Allegan	16.0	43.9	8.0	6.1	3.8	4.5	2.3	18.6	8.8
Alpena	13.8	50.2	9.2	6.8	4.6	13.6	9.0	18.1	7.7
Antrim	13.4	67.3	10.9	4.5	-	-	-	15.6	8.4
Arenac	13.5	58.5	10.9	19.5	14.6	19.4	4.9	17.5	3.8
Baraga	12.7	74.8	13.3	-	-	9.3	9.3	13.5	7.3
Barry	14.4	52.9	7.3	12.1	6.0	9.0	4.5	18.0	8.7
Bay	14.7	70.2	8.2	13.9	8.7	10.4	3.5	17.8	7.4
Benzie	15.9	40.0	11.2	5.7	-	-	-	26.7	3.8
Berrien	15.3	78.4	8.9	16.2	9.5	12.9	5.1	19.7	9.4
Branch	16.6	69.2	9.9	12.3	7.7	9.2	3.1	20.9	9.7
Calhoun	13.9	79.4	9.4	18.0	12.9	16.9	6.7	18.4	10.5
Cass	14.1	78.2	9.0	18.0	9.0	13.5	6.0	17.1	10.1
Charlevoix	16.4	46.0	10.4	12.3	6.1	12.2	6.1	22.2	9.2
Cheboygan	15.6	54.5	8.8	9.1	-	6.0	6.0	20.5	8.5
Chippewa	12.6	65.4	10.4	19.1	10.9	18.9	8.1	17.5	7.8
Clare	14.3	54.3	12.0	34.3	5.7	11.4	5.7	18.7	9.6
Clinton	15.7	45.4	5.6	4.7	3.5	5.8	3.5	16.2	6.8
Crawford	17.2	65.5	9.9	17.9	11.9	23.5	11.8	24.3	9.8
Delta	14.8	27.4	8.5	6.8	5.1	11.9	8.5	18.8	7.0
Dickinson	14.1	39.2	13.0	11.2	8.4	8.4	2.8	21.0	7.6
Eaton	13.9	58.1	6.4	9.0	5.7	17.8	12.1	16.8	8.5
Emmet	14.5	43.5	10.1	5.8	2.9	8.6	5.8	18.3	9.8
Genesee	15.0	80.2	7.6	14.1	9.6	13.3	5.7	18.8	9.9
Gladwin	15.2	62.1	9.8	9.3	6.2	18.4	12.3	17.4	1.4
Gogebic	9.7	42.1	12.9	10.5	5.3	10.5	5.2	18.7	7.3
Grand Traverse	15.6	40.8	7.6	7.9	7.9	14.6	6.8	24.1	10.3
Gratiot	15.7	55.7	10.2	12.7	9.6	17.4	7.9	18.7	8.6
Hillsdale	14.3	72.1	8.8	11.7	10.1	10.0	5.0	16.5	11.7
Houghton	12.9	50.1	10.9	12.0	4.0	4.0	-	15.7	5.9
Huron	15.2	42.4	10.6	11.0	7.4	16.4	12.7	15.2	7.3
Ingham	15.9	58.0	6.0	10.5	6.9	14.5	8.6	20.9	9.4
Ionia	17.0	47.3	7.3	10.1	4.5	11.2	8.9	18.0	7.8
Iosco	18.6	77.3	10.0	3.5	1.8	8.7	8.7	21.0	8.9
Iron	13.0	50.8	16.3	11.3	11.3	16.9	5.6	20.6	6.6
Isabella	13.5	59.7	5.5	6.8	4.1	9.4	5.4	16.5	6.5
Jackson	13.6	59.3	8.9	14.5	9.0	13.9	6.9	16.6	8.7
Kalamazoo	13.7	66.2	7.1	15.1	10.0	17.2	9.0	19.6	10.3
Kalkaska	18.6	52.1	7.9	14.2	4.7	9.4	4.7	22.9	11.6
Kent	17.8	60.4	7.8	10.6	7.3	11.4	5.3	21.4	9.2
Keweenaw	10.5	-	16.0	-	-	-	-	17.0	1.0

Selected Vital Statistics Rates By County, Michigan Residents, 1983 (continued)

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS[1]	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[2]	DIVORCES[2]
Lake	12.2	57.7	14.2	9.6	-	18.9	18.9	13.1	2.6
Lapeer	14.4	59.5	6.3	16.1	13.1	13.1	3.0	18.0	8.8
Leelanau	13.6	46.6	9.5	15.5	5.2	10.3	5.2	16.9	6.9
Lenawee	15.3	54.0	8.1	7.4	5.9	16.8	13.1	17.6	9.4
Livingston	13.8	64.3	6.1	6.7	4.5	14.8	10.4	17.6	9.6
Luce	13.0	76.9	8.8	-	-	12.7	12.7	20.6	8.0
Mackinac	14.1	56.3	12.5	28.2	14.1	14.0	7.0	21.5	3.4
Macomb	13.0	63.2	7.2	8.7	7.0	10.9	5.1	16.7	9.0
Manistee	11.3	52.0	12.9	16.0	12.0	15.9	7.9	17.3	8.1
Marquette	16.5	59.9	7.2	4.2	2.5	9.9	8.3	19.4	9.8
Mason	13.2	86.2	11.2	31.6	17.2	20.0	5.7	17.9	7.6
Mecosta	11.2	68.1	7.6	9.7	7.3	16.8	12.0	15.7	5.5
Menominee	15.2	48.8	11.1	12.9	12.9	7.7	-	21.4	2.0
Midland	15.3	49.3	5.9	8.8	8.8	14.0	7.0	17.7	8.1
Missaukee	17.5	66.7	8.4	5.6	-	5.5	5.5	17.1	7.8
Monroe	14.1	65.6	7.7	10.5	6.6	12.1	6.6	17.2	8.4
Montcalm	15.8	57.6	9.2	6.4	3.8	7.7	3.8	22.1	9.3
Montmorency	13.1	19.4	12.2	9.7	9.7	9.7	-	13.7	6.6
Muskegon	15.9	72.9	8.5	8.5	6.8	9.2	2.4	19.4	10.1
Newaygo	15.3	52.7	8.6	7.3	5.5	14.4	9.0	21.3	7.8
Oakland	13.2	60.4	7.3	9.3	6.7	10.5	4.6	18.6	10.2
Oceana	17.7	41.9	9.4	2.6	-	7.8	7.8	21.7	9.7
Ogemaw	15.4	51.4	13.1	4.0	4.0	15.6	11.7	23.2	7.6
Ontonagon	11.6	34.5	10.2	-	-	-	-	16.8	5.8
Osceola	15.9	48.1	9.8	9.6	6.4	9.5	9.5	19.6	-
Oscoda	16.5	35.7	16.0	-	-	-	-	20.6	4.1
Otsego	17.3	56.6	10.1	3.8	3.8	7.5	3.8	22.5	5.2
Ottawa	17.1	38.8	6.4	7.2	4.7	9.4	4.7	18.6	1.0
Presque Isle	13.6	63.2	11.0	10.5	5.3	15.6	10.4	13.0	5.1
Roscommon	11.8	86.1	12.7	4.8	-	-	-	14.9	9.2
Saginaw	14.8	81.7	7.7	12.2	9.2	14.6	6.4	17.3	8.1
St. Clair	14.2	62.6	8.6	11.7	6.6	15.1	10.1	18.0	8.6
St. Joseph	15.7	46.0	8.5	15.7	12.3	24.4	13.3	20.5	9.7
Sanilac	16.1	55.2	9.[illegible]	3.2	-	10.9	10.9	16.3	7.4
Schoolcraft	14.1	33.9	11.6	8.5	8.5	25.0	16.7	22.2	6.0
Shiawassee	14.6	51.0	6.7	7.0	2.0	6.0	4.0	18.3	9.2
Tuscola	13.9	50.8	7.9	9.1	7.8	10.4	3.9	17.9	9.0
Van Buren	15.5	65.4	9.0	14.4	10.6	17.2	7.6	17.5	13.3
Washtenaw	14.1	58.9	5.4	11.1	5.3	12.1	8.4	18.4	9.4
Wayne	14.3	99.4	10.0	15.4	10.8	16.0	6.5	13.1	6.4
Wexford	15.3	67.7	9.9	5.0	5.0	2.5	-	20.8	11.0

[1] Ratio per 1,000 live births.

[2] By county of occurrence rather than county of residence. Rate of persons per population rather than events per population.

Table 4.11
Live Births with Selected Risk Factors by County of Residence, Michigan Residents, 1983

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE[1]		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Michigan	37270	28.0	1059	0.8	12620	9.5	26413	19.9	8638	6.5	6111	4.6
Alcona	27	27.6	2	2.0	15	15.3	18	18.4	7	7.1	4	4.1
Alger	47	35.9	-	-	16	12.2	28	21.4	11	8.4	7	5.3
Allegan	298	22.5	15	1.1	134	10.1	247	18.7	80	6.1	45	3.4
Alpena	127	29.0	1	0.2	29	6.6	76	17.4	34	7.8	15	3.4
Antrim	43	19.3	1	0.4	17	7.6	42	18.8	13	5.8	6	2.7
Arenac	51	24.9	1	0.5	27	13.2	38	18.5	19	9.3	5	2.4
Baraga	27	25.2	1	0.9	15	14.0	27	25.2	10	9.3	5	4.7
Barry	378	57.1	5	0.8	53	8.0	124	18.7	37	5.6	29	4.4
Bay	381	22.1	7	0.4	147	8.5	317	18.4	87	5.0	59	3.4
Benzie	41	23.4	1	0.6	9	5.1	43	24.6	13	7.4	12	6.9
Berrien	794	31.3	23	0.9	243	9.6	707	27.9	214	8.4	197	7.8
Branch	131	20.2	5	0.8	64	9.8	165	25.4	71	10.9	29	4.5
Calhoun	718	37.0	21	1.1	178	9.2	471	24.3	150	7.7	124	6.4
Cass	278	41.8	3	0.5	66	9.9	171	25.7	95	14.3	36	5.4
Charlevoix	114	35.0	4	1.2	31	9.5	60	18.4	16	4.9	7	2.1
Cheboygan	131	39.7	9	2.7	29	8.8	65	19.7	12	3.6	9	2.7
Chippewa	66	18.0	5	1.4	32	8.7	87	23.7	34	9.3	16	4.4
Clare	80	22.9	1	0.3	35	10.0	86	24.6	44	12.6	18	5.1
Clinton	227	26.4	8	0.9	93	10.8	103	12.0	37	4.3	26	3.0
Crawford	54	32.1	2	1.2	18	10.7	43	25.6	10	6.0	7	4.2
Delta	152	26.0	5	0.9	60	10.3	57	9.8	28	4.8	17	2.9
Dickinson	65	18.2	5	1.4	26	7.3	47	13.2	14	3.9	5	1.4
Eaton	414	33.9	16	1.3	79	6.5	144	11.8	50	4.1	42	3.4
Emmet	127	36.8	-	-	29	8.4	35	10.1	19	5.5	12	3.5
Genesee	2505	37.6	35	0.5	643	9.7	1517	22.8	336	5.0	399	6.0
Gladwin	122	37.9	2	0.6	24	7.5	84	26.1	21	6.5	16	5.0
Gogebic	62	32.6	3	1.6	19	10.0	30	15.8	20	10.5	7	3.7
Grand Traverse	151	17.1	12	1.4	61	6.9	90	10.2	39	4.4	21	2.4
Gratiot	115	18.3	3	0.5	46	7.3	119	18.9	34	5.4	31	4.9
Hillsdale	236	39.6	9	1.5	71	11.9	150	25.2	54	9.1	24	4.0
Houghton	173	34.7	13	2.6	92	18.4	59	11.8	31	6.2	20	4.0
Huron	148	27.3	5	0.9	61	11.2	61	11.2	47	8.7	14	2.6
Ingham	1235	28.3	30	0.7	386	8.8	757	17.3	207	4.7	177	4.1
Ionia	251	28.3	6	0.7	72	8.1	196	22.1	47	5.3	36	4.1
Iosco	249	43.8	8	1.4	48	8.4	109	19.2	25	4.4	25	4.4
Iron	63	35.6	4	2.3	25	14.1	31	17.5	13	7.3	11	6.2
Isabella	161	21.8	6	0.8	62	8.4	109	14.8	131	17.8	24	3.3
Jackson	452	22.5	7	0.3	176	8.8	383	19.1	128	6.4	101	5.0
Kalamazoo	1164	38.9	18	0.6	248	8.3	496	16.6	140	4.7	111	3.7
Kalkaska	21	10.0	-	-	20	9.5	42	19.9	15	7.1	15	7.1
Kent	1405	17.1	60	0.7	728	8.9	1323	16.1	308	3.7	368	4.5

Table 4.11 (Continued)

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE[1]		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Keweenaw	5	23.8	-	-	1	4.8	4	19.0	-	-	-	-
Lake	26	25.0	4	3.8	13	12.5	31	29.8	13	12.5	6	5.8
Lapeer	247	24.9	8	0.8	98	9.9	187	18.9	45	4.5	39	3.9
Leelanau	39	20.2	-	-	11	5.7	28	14.5	5	2.6	3	1.6
Lenawee	407	30.1	12	0.9	125	9.2	299	22.1	92	6.8	54	4.0
Livingston	406	30.4	11	0.8	104	7.8	146	10.9	88	6.6	30	2.2
Luce	14	17.9	1	1.3	13	16.7	23	29.5	6	7.7	7	9.0
Mackinac	41	28.9	2	1.4	18	12.7	34	23.9	19	13.4	7	4.9
Macomb	2308	25.8	43	0.5	659	7.4	1195	13.3	298	3.3	187	2.1
Manistee	58	23.2	2	0.8	21	8.4	50	20.0	11	4.4	9	3.6
Marquette	582	48.4	8	0.7	93	7.7	134	11.1	65	5.4	37	3.1
Mason	91	26.1	5	1.4	28	8.0	64	18.4	23	6.6	15	4.3
Mecosta	153	37.2	18	4.4	33	8.0	66	16.1	24	5.8	17	4.1
Menominee	168	43.2	4	1.0	38	9.8	49	12.6	30	7.7	10	2.6
Midland	460	40.5	11	1.0	77	6.8	155	13.6	38	3.3	32	2.8
Missaukee	44	24.4	2	1.1	16	8.9	44	24.4	6	3.3	9	5.0
Monroe	601	33.1	10	0.6	164	9.0	357	19.7	212	11.7	90	5.0
Montcalm	184	23.6	7	0.9	74	9.5	195	25.0	81	10.4	44	5.6
Montmorency	19	18.4	1	1.0	15	14.6	15	14.6	10	9.7	3	2.9
Muskegon	468	18.9	17	0.7	225	9.1	523	21.1	115	4.6	139	5.6
Newaygo	140	25.5	10	1.8	64	11.6	115	20.9	35	6.4	14	2.5
Oakland	3165	23.8	76	0.6	1021	7.7	1833	13.8	437	3.3	372	2.8
Oceana	94	24.6	6	1.6	29	7.6	111	29.1	36	9.4	20	5.2
Ogemaw	53	20.9	4	1.6	31	12.3	63	24.9	17	6.7	10	4.0
Ontonagon	27	23.3	2	1.7	13	11.2	16	13.8	8	6.9	4	3.4
Osceola	78	25.0	4	1.3	31	9.9	73	23.4	20	6.4	12	3.8
Oscoda	20	17.9	2	1.8	13	11.6	26	23.2	12	10.7	4	3.6
Otsego	63	23.8	2	0.8	29	10.9	28	10.6	12	4.5	4	1.5
Ottawa	486	17.6	17	0.6	236	8.6	347	12.6	80	2.9	62	2.2
Presque Isle	47	24.7	5	2.6	28	14.7	33	17.4	8	4.2	6	3.2
Roscommon	58	27.8	2	1.0	20	9.6	72	34.4	16	7.7	17	8.1
Saginaw	599	18.3	18	0.6	331	10.1	756	23.1	199	6.1	197	6.0
St. Clair	568	28.9	20	1.0	181	9.2	452	23.0	118	6.0	98	5.0
St. Joseph	260	29.2	6	0.7	108	12.1	221	24.8	89	10.0	31	3.5
Sanilac	254	40.1	8	1.3	62	9.8	122	19.2	76	12.0	19	3.0
Schoolcraft	18	15.3	1	0.8	13	11.0	25	21.2	10	8.5	7	5.9
Shiawassee	245	24.5	8	0.8	85	8.5	200	20.0	51	5.1	48	4.8
Tuscola	194	25.3	6	0.8	69	9.0	143	18.6	51	6.6	30	3.9
Van Buren	346	33.3	9	0.9	114	11.0	307	29.5	90	8.7	63	6.1
Washtenaw	1393	36.8	29	0.8	332	8.8	403	10.7	184	4.9	115	3.0
Wayne	9471	29.4	290	0.9	3714	11.5	8616	26.8	3182	9.9	2089	6.5
Wexford	86	21.6	6	1.5	43	10.8	95	23.8	25	6.3	19	4.8
Co. Not Stated	-	-	-	-	-	-	-	-	-	-	-	-

[1] Births in which the mother received no care prior to the third trimester, or had five or fewer prenatal visits.

Table 4.12
Live Births by Age of Mother and County of Residence, Michigan Residents, 1983

AREA	TOTAL	AGE OF MOTHER												
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Michigan	133026	328	761	1845	3177	4774	6032	16589	42034	45065	22505	5669	829	7
Alcona	98	-	1	-	3	6	7	17	38	25	9	7	2	-
Alger	131	-	-	1	6	8	15	30	37	40	18	5	1	-
Allegan	1322	2	4	12	27	52	67	162	469	446	185	50	8	-
Alpena	438	1	-	4	10	22	22	58	166	136	59	17	1	-
Antrim	223	-	-	2	4	10	9	25	82	68	37	8	3	-
Arenac	205	-	-	-	5	9	13	27	73	69	30	5	1	-
Baraga	107	-	1	-	4	11	5	21	38	24	15	9	-	-
Barry	662	-	5	9	15	24	41	94	246	184	111	24	3	-
Bay	1723	-	10	16	33	48	76	183	599	621	252	58	10	-
Benzie	175	1	-	4	7	9	6	26	66	46	33	1	2	-
Berrien	2538	9	28	65	95	126	164	478	872	712	367	82	18	-
Branch	650	1	2	13	13	25	41	94	243	211	80	19	2	-
Calhoun	1940	10	15	35	64	89	120	323	711	570	260	58	8	-
Cass	665	2	2	14	18	30	37	101	251	189	88	30	4	-
Charlevoix	326	1	-	2	4	13	26	45	104	106	54	15	1	-
Cheboygan	330	-	3	3	3	12	20	41	136	88	53	12	-	-
Chippewa	367	1	2	5	8	23	17	55	145	105	42	17	2	-
Clare	350	-	2	3	13	23	34	75	129	96	39	10	1	-
Clinton	859	-	1	6	19	27	33	86	274	296	152	47	4	-
Crawford	168	-	1	1	5	7	9	23	60	52	21	9	3	-
Delta	584	1	-	5	11	20	30	66	195	204	93	20	5	-
Dickinson	357	1	-	1	3	13	15	32	135	120	55	10	3	1
Eaton	1222	2	5	10	25	37	52	129	414	411	201	58	6	1
Emmet	345	-	2	3	7	4	15	31	99	136	63	16	-	-
Genesee	6660	31	51	132	185	294	336	998	2292	2170	884	249	36	-
Gladwin	322	-	3	6	7	21	18	55	136	95	28	8	-	-
Gogebic	190	-	2	2	3	8	8	23	65	56	34	11	1	-
Grand Traverse	882	-	2	4	15	19	29	69	249	346	184	29	5	-
Gratiot	628	2	-	11	18	31	29	89	227	200	85	21	4	-
Hillsdale	596	1	2	6	15	26	35	84	231	170	77	28	5	-
Houghton	499	-	-	7	13	11	32	63	155	153	82	38	8	-
Huron	543	-	5	2	7	11	28	53	195	195	75	21	4	-
Ingham	4365	9	24	57	87	137	190	495	1310	1501	850	169	31	-
Ionia	888	-	4	7	25	36	58	130	336	288	110	20	4	-
Iosco	569	1	4	5	15	26	34	84	215	186	72	10	1	-
Iron	177	1	-	-	10	5	7	22	55	59	29	9	2	-
Isabella	737	2	2	6	14	26	36	84	261	251	112	24	3	-
Jackson	2006	7	11	31	52	93	104	291	650	670	302	74	12	-
Kalamazoo	2989	15	8	34	54	82	99	277	865	1127	581	109	15	-
Kalkaska	211	-	4	1	10	12	16	43	81	55	28	3	1	-
Kent	8215	19	48	125	176	234	329	912	2635	2861	1444	317	27	-
Keweenaw	21	-	-	-	-	-	2	2	11	4	4	-	-	-

Table 4.12
Live Births by Age of Mother and County of Residence, Michigan Residents, 1983 (Cont.)

AREA	TOTAL	AGE OF MOTHER												
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Lake	104	-	1	2	3	5	7	18	43	29	11	2	1	-
Lapeer	991	-	4	9	26	36	58	133	342	338	142	34	2	-
Leelanau	193	-	1	2	-	4	7	14	49	71	45	11	3	-
Lenawee	1352	1	9	14	30	62	92	207	445	447	192	51	9	-
Livingston	1337	-	1	6	23	49	36	115	370	493	291	55	13	-
Luce	78	-	-	2	5	4	5	16	23	19	14	6	-	-
Mackinac	142	-	-	1	6	5	14	26	48	37	26	4	1	-
Macomb	8957	2	16	71	98	183	240	608	2583	3617	1629	457	60	1
Manistee	250	-	-	3	6	6	15	30	90	82	44	2	2	-
Marquette	1202	2	4	10	21	29	44	108	429	423	194	39	6	1
Mason	348	-	1	5	9	10	24	49	128	101	56	13	1	-
Mecosta	411	3	2	6	6	16	22	52	147	129	66	12	2	-
Menominee	389	-	1	3	6	18	24	52	132	135	59	11	-	-
Midland	1136	1	6	5	20	17	40	88	320	445	234	45	3	-
Missaukee	180	-	-	2	7	9	11	29	66	54	25	3	3	-
Monroe	1813	2	7	27	54	75	76	239	626	638	231	68	9	-
Montcalm	781	-	4	11	29	44	50	138	281	230	106	25	1	-
Montmorency	103	-	1	-	2	4	4	11	38	28	22	3	1	-
Muskegon	2482	6	25	45	63	115	145	393	826	851	339	58	9	-
Newaygo	550	-	2	5	7	34	35	83	204	170	70	19	4	-
Oakland	13304	13	49	94	216	305	389	1053	3427	4811	3026	859	113	2
Oceana	382	-	2	6	12	19	31	70	142	120	41	8	1	-
Ogemaw	253	-	1	2	7	7	19	36	112	62	31	10	2	-
Ontonagon	116	-	-	-	4	10	3	17	39	39	12	7	2	-
Osceola	312	-	1	2	9	19	23	54	125	80	43	9	1	-
Oscoda	112	-	-	1	3	5	6	15	44	34	15	3	1	-
Otsego	265	-	-	1	3	8	4	16	99	86	51	13	-	-
Ottawa	2759	2	6	20	34	65	92	217	880	1042	511	94	13	-
Presque Isle	190	-	1	1	4	8	13	27	56	59	38	8	2	-
Roscommon	209	-	6	4	7	10	10	37	84	59	23	5	1	-
Saginaw	3267	8	27	66	96	148	161	498	1038	1076	508	119	20	-
St. Clair	1966	5	13	26	54	75	103	271	709	627	285	62	7	-
St. Joseph	891	-	2	7	22	39	52	122	325	283	130	26	5	-
Sanilac	634	1	1	3	14	31	28	77	251	194	84	26	1	-
Schoolcraft	118	-	-	2	5	7	13	27	38	37	11	5	-	-
Shiawassee	1000	2	2	15	29	43	46	135	349	342	127	41	4	-
Tuscola	768	1	1	6	22	47	42	118	269	236	108	28	8	-
Van Buren	1040	4	2	19	38	53	57	169	355	301	164	43	4	-
Washtenaw	3784	8	11	35	61	73	110	290	919	1327	946	261	33	-
Wayne	32174	147	297	653	992	1342	1588	4872	9886	10450	5203	1382	233	1
Wexford	399	-	-	3	16	15	29	63	145	121	54	15	1	-
Co. Not Stated	1	-	-	-	-	-	-	-	1	-	-	-	-	-

Table 4.13
Vital Statistics for Residents of Selected Michigan Cities[1], 1983

AREA	LIVE BIRTHS	DEATHS	INFANT DEATHS		FETAL DEATHS	
			NUMBER	RATE	NUMBER	RATE
Allen Park	343	340	2	5.8	3	8.7
Ann Arbor	1435	477	16	11.1	10	6.9
Battle Creek[2]	988	635	20	20.2	8	8.0
Bay City	751	467	12	16.0	2	2.7
Burton City	378	216	4	10.6	3	7.9
Dearborn	1133	1009	12	10.6	6	5.3
Dearborn Heights	647	599	3	4.6	1	1.5
Detroit	17922	13202	354	19.8	127	7.0
East Detroit	454	448	7	15.4	3	6.6
East Lansing	429	129	6	14.0	7	16.1
Farmington Hills	644	398	5	7.8	1	1.6
Ferndale	433	291	6	13.9	3	6.9
Flint	3141	1540	53	16.9	24	7.6
Garden City	420	216	4	9.5	3	7.1
Grand Rapids	3720	1950	53	14.2	17	4.5
Highland Park	415	336	12	28.9	1	2.4
Holland	557	230	2	3.6	3	5.4
Inkster	472	271	6	12.7	6	12.6
Jackson	704	507	15	21.3	7	9.8
Kalamazoo	1329	663	16	12.0	17	12.6
Kentwood	510	126	3	5.9	3	5.8
Lansing	2593	939	30	11.6	23	8.8
Lincoln Park	617	391	9	14.6	1	1.6
Livonia	1013	759	14	13.8	4	3.9
Madison Heights	522	263	5	9.6	2	3.8
Midland	568	242	5	8.8	5	8.7
Muskegon	854	463	7	8.2	2	2.3
Oak Park	474	291	4	8.4	-	-
Pontiac	1448	679	28	19.3	11	7.5
Portage	489	188	12	24.5	1	2.0
Port Huron	650	343	8	12.3	8	12.2
Roseville	775	405	7	9.0	6	7.7
Royal Oak	1050	648	5	4.8	5	4.7
Saginaw	1515	742	25	16.5	10	6.6
St. Clair Shores	718	690	7	9.7	1	1.4
Southfield	779	785	4	5.1	-	-
Southgate	322	211	3	9.3	3	9.2
Sterling Heights	1279	523	7	5.5	6	4.7
Taylor	1163	411	6	5.2	8	6.8
Troy	828	348	5	6.0	4	4.8
Warren	1746	1204	14	8.0	10	5.7
Westland	1174	630	11	9.4	5	4.2
Wyandotte	525	338	1	1.9	6	11.3
Wyoming	1032	391	11	10.7	7	6.7

[1] 25,000 population or over according to the 1980 census.

[2] On January 1,1983, Battle Creek City annexed Battle Creek Township. The data shown for Battle Creek in this table are for the current boundaries of Battle Creek, and thus are not comparable to data for Battle Creek for earlier years. The 1983 infant death rate for Battle Creek would have been 21.5 if the boundaries had not changed.

Table 4.14
Number of Deaths by Underlying Cause and County of Residence, Michigan, 1983

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
Michigan	76639	39	718	16785	4164	4657	1468	1797	753	652	3294
Alcona	126	-	-	21	4	3	3	4	2	2	3
Alger	105	-	1	21	6	5	3	1	-	-	6
Allegan	658	-	4	143	27	40	15	13	9	5	34
Alpena	290	1	-	61	13	17	9	7	-	1	14
Antrim	182	-	-	47	11	7	4	8	1	1	15
Arenac	166	-	2	35	8	13	4	3	1	1	5
Baraga	112	-	-	23	8	5	-	2	1	1	6
Barry	337	1	1	87	24	22	4	16	2	4	15
Bay	968	-	3	223	58	59	19	12	6	9	60
Benzie	123	-	1	24	7	7	3	3	-	-	4
Berrien	1471	1	15	285	66	82	25	38	19	10	45
Branch	388	-	4	73	20	25	4	5	2	4	13
Calhoun	1317	1	12	292	74	79	25	41	6	7	60
Cass	425	-	1	93	23	28	11	6	2	8	15
Charlevoix	206	-	1	45	12	10	3	9	3	-	8
Cheboygan	186	-	2	49	12	16	4	5	2	3	7
Chippewa	302	-	2	72	15	26	4	6	4	1	16
Clare	292	-	3	51	12	14	2	6	2	4	11
Clinton	308	1	1	81	18	26	14	4	2	4	13
Crawford	97	-	1	24	2	9	2	3	2	1	5
Delta	338	-	3	63	20	15	3	9	-	2	14
Dickinson	329	-	2	69	19	15	7	11	2	1	14
Eaton	561	-	11	120	28	25	11	12	7	9	28
Emmet	240	-	1	54	15	13	1	7	2	5	11
Genesee	3385	-	39	731	195	204	52	75	45	17	143
Gladwin	207	-	1	42	6	15	3	4	4	2	8
Gogebic	252	-	-	55	22	13	5	2	-	1	12
Grand Traverse	429	-	5	84	12	25	12	9	5	3	18
Gratiot	407	-	2	56	11	14	7	11	3	4	6
Hillsdale	367	-	2	66	22	17	4	9	3	2	9
Houghton	424	-	3	80	21	18	3	18	3	3	14
Huron	378	-	1	84	30	19	6	10	4	2	13
Ingham	1641	1	14	409	95	101	54	40	16	16	87
Ionia	383	-	2	71	21	23	4	5	3	2	13
Iosco	305	-	3	69	14	25	7	3	3	3	14
Iron	221	-	3	58	17	25	4	3	-	-	9
Isabella	299	-	1	61	15	19	4	3	3	2	15
Jackson	1313	-	11	265	67	65	21	31	13	13	55
Kalamazoo	1539	1	11	371	97	97	36	47	21	15	58
Kalkaska	90	-	-	26	6	9	1	3	1	1	5
Kent	3578	1	19	779	185	176	85	76	38	37	182

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1983 (Continued)

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
Keweenaw	32	-	-	8	1	3	2	-	-	2	0
Lake	121	-	1	31	8	11	-	1	1	-	10
Lapeer	432	-	3	103	25	28	13	14	2	4	17
Leelanau	135	-	1	26	8	5	2	4	2	1	4
Lenawee	717	-	2	167	30	53	18	16	9	8	33
Livingston	590	-	5	139	36	41	11	14	5	5	27
Luce	53	-	1	10	2	4	-	1	1	-	2
Mackinac	126	-	-	38	7	9	4	2	3	-	13
Macomb	4978	4	40	1188	270	358	109	102	63	40	246
Manistee	286	-	2	67	20	15	3	11	4	3	11
Marquette	522	-	1	97	35	20	11	7	5	3	16
Mason	295	-	-	55	16	15	2	3	2	2	15
Mecosta	277	-	7	54	14	16	3	5	2	5	9
Menominee	284	-	4	60	16	10	7	3	6	4	14
Midland	438	-	4	94	25	25	13	6	4	4	17
Missaukee	86	-	1	22	6	3	2	4	-	1	6
Monroe	987	-	5	206	53	63	16	19	8	11	36
Montcalm	454	-	3	91	27	21	5	11	4	1	22
Montmorency	96	-	-	23	8	6	1	2	1	1	4
Muskegon	1334	1	10	296	66	84	28	28	8	15	67
Newaygo	308	-	1	63	14	19	9	5	5	1	10
Oakland	7377	3	79	1741	414	463	152	192	74	72	374
Oceana	202	-	4	36	11	11	1	2	2	2	7
Ogemaw	216	-	-	46	10	13	5	5	4	1	8
Ontonagon	102	-	1	27	6	5	1	3	2	2	8
Osceola	192	-	-	42	9	10	6	5	-	4	8
Oscoda	109	-	2	33	6	11	2	4	-	-	10
Otsego	154	-	-	28	8	10	-	2	2	1	5
Ottawa	1028	-	10	235	67	52	14	23	11	11	57
Presque Isle	154	-	1	34	9	5	2	5	2	4	7
Roscommon	225	-	2	54	13	15	5	6	2	5	8
Saginaw	1711	2	18	369	88	91	30	47	16	13	84
St. Clair	1190	1	5	281	59	78	25	30	27	11	51
St. Joseph	482	-	5	97	25	25	11	15	-	-	21
Sanilac	378	-	4	77	21	13	4	~~13~~	5	5	16
Schoolcraft	97	-	-	25	4	8	-	1	3	2	7
Shiawassee	458	-	1	94	22	25	4	19	3	4	17
Tuscola	434	-	3	78	23	26	5	3	4	5	12
Van Buren	607	1	6	125	29	34	4	12	8	6	32
Washtenaw	1460	1	14	338	86	96	28	36	20	16	56
Wayne	22506	18	281	4767	1211	1421	418	535	185	167	830
Wexford	258	-	3	57	18	10	4	1	6	4	14
Co. Not Stated	3	-	-	-	-	-	-	-	-	-	0

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1983 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct. Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis. of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
Michigan	1470	123	38495	30412	306	5721	1269	787	2102	2466	242	1250
Alcona	2	1	77	61	1	12	-	3	2	5	-	1
Alger	7	-	61	38	-	17	5	1	2	2	-	1
Allegan	9	3	324	254	2	45	16	7	30	12	3	7
Alpena	8	-	150	127	-	18	3	2	7	6	-	6
Antrim	2	1	100	70	1	17	10	2	7	2	1	2
Arenac	1	-	83	65	-	11	1	6	6	6	1	3
Baraga	3	-	61	55	-	5	-	1	4	3	1	2
Barry	10	1	152	125	2	18	3	4	7	16	1	0
Bay	10	-	543	429	3	52	48	11	9	44	3	17
Benzie	2	-	66	48	1	12	4	1	6	4	-	3
Berrien	25	3	741	575	3	119	22	22	50	58	6	16
Branch	12	-	183	134	3	26	12	8	18	14	2	7
Calhoun	39	4	626	516	10	75	12	13	50	59	4	19
Cass	8	3	202	164	-	24	7	7	20	25	3	2
Charlevoix	4	-	114	96	2	8	2	6	4	8	-	1
Cheboygan	6	1	88	72	-	14	1	1	7	4	3	1
Chippewa	14	1	146	119	1	21	1	4	5	12	3	2
Clare	4	-	170	149	2	15	1	3	3	14	1	3
Clinton	2	-	148	113	1	23	10	1	5	16	1	3
Crawford	2	-	49	36	-	7	3	3	1	4	-	0
Delta	6	-	173	134	2	20	7	10	11	5	2	8
Dickinson	5	-	169	130	-	27	6	6	9	12	2	3
Eaton	9	2	278	203	3	41	24	7	20	21	1	5
Emmet	5	-	109	89	-	15	1	4	11	9	-	3
Genesee	75	5	1704	1315	17	279	64	29	91	119	13	45
Gladwin	3	1	113	87	-	18	6	2	2	10	-	2
Gogebic	3	-	136	98	2	32	1	3	13	7	1	3
Grand Traverse	3	-	233	167	2	41	18	5	13	13	3	3
Gratiot	6	3	236	160	1	60	6	9	20	10	1	6
Hillsdale	7	-	194	154	2	29	5	4	17	15	-	3
Houghton	8	-	242	191	4	25	17	5	14	12	2	4
Huron	5	-	205	158	-	39	5	3	11	8	2	10
Ingham	41	5	713	532	11	119	32	19	43	55	3	20
Ionia	14	-	187	145	4	29	7	2	10	15	1	3
Iosco	1	-	164	131	1	25	4	3	7	10	-	6
Iron	2	-	105	77	-	20	3	5	11	10	-	3
Isabella	7	-	150	108	-	38	2	2	10	10	-	2
Jackson	31	2	669	500	5	113	38	13	28	55	8	16
Kalamazoo	29	4	705	541	10	115	19	20	51	59	6	18
Kalkaska	3	-	40	27	1	6	6	-	2	3	-	1
Kent	59	3	1801	1316	7	313	124	41	118	135	8	49

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1983 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct. Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis. of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
Keweenaw	-	-	15	13	-	2	-	-	2	1	-	2
Lake	1	-	64	49	1	6	3	5	3	1	-	1
Lapeer	10	-	209	160	2	33	8	6	10	7	1	4
Leelanau	3	1	75	54	-	11	8	2	3	2	1	0
Lenawee	23	-	349	267	3	61	13	5	16	32	3	4
Livingston	14	2	278	230	2	30	10	6	20	31	3	2
Luce	2	-	28	18	1	2	4	3	3	1	-	0
Mackinac	2	-	61	41	-	14	6	-	3	4	-	0
Macomb	91	4	2609	2097	20	369	86	37	108	144	19	92
Manistee	2	-	158	103	2	34	15	4	7	8	1	2
Marquette	10	1	276	205	2	47	12	10	18	27	3	10
Mason	8	1	155	111	6	29	5	4	11	5	-	3
Mecosta	5	-	133	117	-	13	2	1	12	17	3	1
Menominee	6	3	153	114	-	27	11	1	1	13	-	2
Midland	2	-	220	164	2	36	13	5	17	13	1	6
Missaukee	-	-	49	39	-	5	4	1	1	3	-	0
Monroe	19	3	511	417	3	74	12	5	24	28	3	16
Montcalm	10	1	219	161	5	40	7	6	19	23	2	4
Montmorency	1	-	52	37	2	11	1	1	1	4	1	0
Muskegon	27	3	669	505	3	114	28	19	40	52	3	15
Newaygo	6	-	167	133	2	16	11	5	5	9	1	1
Oakland	134	9	3761	3062	20	510	88	81	191	201	32	104
Oceana	6	2	103	81	1	15	5	1	5	13	-	0
Ogemaw	7	-	120	91	1	19	6	3	9	10	-	0
Ontonagon	1	-	58	33	-	9	14	2	2	2	-	1
Osceola	3	-	104	80	1	15	4	4	10	5	1	3
Oscoda	2	-	51	40	1	8	-	2	2	3	-	1
Otsego	4	-	89	76	-	11	1	1	3	5	1	1
Ottawa	21	4	514	385	4	82	27	16	45	25	6	5
Presque Isle	1	3	81	69	1	10	1	-	3	3	1	2
Roscommon	1	-	124	99	1	19	4	1	3	7	2	2
Saginaw	25	2	870	667	5	147	33	18	37	38	5	34
St. Clair	30	2	598	457	4	100	17	20	19	57	2	25
St. Joseph	20	-	250	197	3	31	11	8	12	19	2	4
Sanilac	10	-	198	148	-	37	5	8	4	11	-	4
Schoolcraft	1	-	48	35	2	8	1	2	7	1	-	2
Shiawassee	10	-	244	185	-	50	4	5	18	16	-	1
Tuscola	3	1	225	185	2	27	9	2	20	21	-	2
Van Buren	17	3	318	250	2	51	4	11	16	22	3	3
Washtenaw	33	-	658	506	7	103	28	14	39	56	5	13
Wayne	406	35	11092	9119	91	1533	186	163	567	609	49	565
Wexford	1	-	129	103	-	19	6	1	11	10	2	2
Co. Not Stated	-	-	-	-	-	-	-	-	-	-	-	1

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1983 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis.	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
Michigan	704	6	491	854	371	5448	2947	1419	1528	1084	957	87
Alcona	1	-	-	-	1	9	2	-	2	3	1	-
Alger	2	-	-	-	1	4	3	1	2	-	-	-
Allegan	3	-	7	4	12	49	37	15	22	7	4	-
Alpena	3	-	2	2	2	23	15	6	9	4	-	-
Antrim	1	-	2	-	-	8	8	3	5	1	-	-
Arenac	2	-	1	2	1	13	6	4	2	4	-	-
Baraga	1	-	-	-	-	4	6	3	3	4	-	-
Barry	3	-	3	4	2	22	20	13	7	6	-	1
Bay	10	-	4	16	4	40	25	11	14	9	8	-
Benzie	3	-	-	-	-	7	6	4	2	1	-	-
Berrien	15	-	8	26	8	127	67	28	39	13	7	-
Branch	3	-	6	5	-	29	30	17	13	2	-	-
Calhoun	8	-	9	20	11	85	52	18	34	13	8	5
Cass	3	-	3	7	5	29	17	6	11	2	2	-
Charlevoix	1	-	-	1	2	14	10	4	6	1	-	-
Cheboygan	2	-	2	1	-	12	4	1	3	3	1	-
Chippewa	2	-	1	4	-	23	11	3	8	2	2	-
Clare	7	-	1	2	5	13	10	3	7	3	2	-
Clinton	1	-	1	4	-	20	16	12	4	7	1	-
Crawford	2	-	1	1	1	8	3	2	1	-	-	-
Delta	4	-	1	2	1	31	26	9	17	2	-	-
Dickinson	2	-	2	2	1	36	8	4	4	6	-	1
Eaton	5	-	4	6	1	42	28	17	11	8	-	-
Emmet	3	-	1	1	2	21	16	8	8	4	-	-
Genesee	29	-	27	53	17	222	129	70	59	41	42	3
Gladwin	2	-	-	2	2	16	9	5	4	2	-	-
Gogebic	1	-	-	1	3	18	8	5	3	3	-	-
Grand Traverse	5	-	4	4	-	35	17	10	7	6	1	-
Gratiot	8	-	5	3	2	25	15	8	7	6	2	1
Hillsdale	4	-	3	4	1	28	19	11	8	3	1	-
Houghton	1	-	2	2	2	30	17	6	11	5	-	-
Huron	4	-	2	3	2	28	9	2	7	4	-	-
Ingham	15	-	13	26	16	142	79	33	46	37	8	1
Ionia	3	-	5	2	4	34	22	15	7	8	2	-
Iosco	6	-	-	1	-	15	17	9	8	5	1	-
Iron	4	-	1	1	2	12	8	3	5	1	-	-
Isabella	1	1	3	3	2	21	21	15	6	3	3	-
Jackson	9	-	9	11	9	103	56	30	26	21	10	-
Kalamazoo	9	-	15	24	6	127	72	29	43	25	6	-
Kalkaska	-	-	-	-	1	4	7	2	5	3	-	-
Kent	29	-	30	44	21	263	148	88	60	46	23	2

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1983 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis.	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
Keweenaw	1	-	-	-	-	2	1	1	-	-	-	-
Lake	1	-	-	-	-	2	12	7	5	2	2	-
Lapeer	8	1	7	6	2	24	27	18	9	9	1	-
Leelanau	1	-	2	1	-	10	6	-	6	3	-	-
Lenawee	6	-	3	4	1	51	42	17	25	13	-	1
Livingston	5	-	2	6	2	37	31	22	9	12	-	1
Luce	2	-	-	-	1	2	2	-	2	1	-	-
Mackinac	1	-	2	1	1	7	6	4	2	-	-	-
Macomb	42	-	35	43	12	298	146	87	59	79	21	3
Manistee	1	-	1	2	4	25	4	1	3	2	-	-
Marquette	4	-	3	1	4	37	24	12	12	6	-	-
Mason	3	-	2	5	3	22	19	13	6	2	1	-
Mecosta	7	-	1	2	-	17	10	7	3	5	3	-
Menominee	3	-	4	2	1	18	9	4	5	4	1	-
Midland	5	-	5	6	-	34	22	13	9	7	2	-
Missaukee	1	-	-	-	-	6	2	2	-	1	-	-
Monroe	12	-	6	10	4	71	40	19	21	21	8	-
Montcalm	7	-	3	2	2	35	26	16	10	7	-	-
Montmorency	2	-	1	1	-	8	2	1	1	-	-	-
Muskegon	9	1	11	14	3	106	44	21	23	20	10	-
Newaygo	3	-	2	2	2	23	19	11	8	4	-	-
Oakland	64	-	39	72	24	480	264	137	127	125	46	8
Oceana	2	-	3	-	-	14	10	5	5	3	1	-
Ogemaw	1	-	-	1	-	12	5	2	3	3	2	-
Ontonagon	-	-	1	-	-	3	6	1	5	-	-	-
Osceola	2	-	2	-	-	8	9	6	3	2	1	-
Oscoda	-	-	-	-	1	4	9	6	3	1	-	-
Otsego	2	-	-	1	-	14	6	2	4	-	-	-
Ottawa	5	1	6	11	13	71	40	24	16	15	1	-
Presque Isle	5	-	2	2	-	11	3	1	2	2	-	-
Roscommon	2	-	-	-	1	16	9	5	4	1	1	-
Saginaw	19	-	15	22	7	119	75	32	43	24	30	-
St. Clair	13	-	11	9	5	75	42	25	17	9	5	-
St. Joseph	2	-	6	5	2	32	21	9	12	5	-	-
Sanilac	6	-	3	-	-	37	20	13	7	3	1	-
Schoolcraft	-	-	-	1	-	7	3	2	1	2	-	-
Shiawassee	5	-	3	2	2	35	22	6	16	4	1	-
Tuscola	5	-	3	4	1	35	28	9	19	4	1	-
Van Buren	-	-	3	9	4	37	28	9	19	11	1	-
Washtenaw	14	-	16	17	19	123	71	38	33	32	10	1
Wayne	215	2	108	296	99	1670	689	272	417	308	671	59
Wexford	1	-	2	-	1	18	13	6	7	8	-	-
Co. Not Stated	-	-	-	-	-	-	1	-	1	-	1	-

Table 4.15
Reported Cases of Certain Communicable Diseases by County
Michigan Residents, 1983

AREA	TOTAL	GONORRHEA	CHICKEN POX	STREP[1]	HEPATITIS (ALL TYPES)	SAMONELLA INFECTIONS	TUBERCULOSIS	SYPHILIS	MUMPS	DYSENTERY BACILLARY	MEASLES	RUBELLA	MENINGOCOCCAL INFECTIONS	WHOOPING COUGH	ALL OTHER[1]
Michigan	92120	34065	39449	11157	1788	1283	790	731	526	421	8	21	91	43	1747
Alcona	7	2	1	2	-	1	-	-	-	-	-	-	-	-	1
Alger	31	5	6	18	-	-	-	-	2	-	-	-	-	-	-
Allegan	336	79	172	50	22	1	2	1	2	-	-	-	1	-	6
Alpena	277	7	221	26	-	-	2	-	2	-	-	3	-	2	14
Antrim	51	16	5	12	3	2	-	-	-	1	-	-	1	-	11
Arenac	22	8	9	2	1	-	-	-	-	-	-	-	1	1	-
Baraga	80	1	77	-	-	1	-	-	-	-	-	-	-	-	1
Barry	145	7	38	77	8	4	-	-	1	4	-	-	-	-	6
Bay	780	147	417	161	4	9	6	9	3	3	-	-	1	1	19
Benzie	117	18	89	4	2	2	-	-	2	-	-	-	-	-	-
Berrien	1897	1229	431	58	78	42	22	5	2	18	-	-	2	-	10
Branch	235	21	99	94	2	3	4	-	1	-	-	-	-	-	11
Calhoun	783	362	180	138	27	19	11	10	8	1	-	-	2	-	25
Cass	352	65	213	39	10	6	8	-	2	1	1	-	-	1	6
Charlevoix	205	23	150	18	-	4	1	2	-	-	-	-	-	-	7
Cheboygan	89	3	64	18	2	-	-	-	1	-	-	-	-	-	1
Chippewa	354	24	155	154	5	4	10	2	-	-	-	-	-	-	-
Clare	21	7	-	-	5	2	3	2	-	-	-	-	-	-	2
Clinton	240	24	108	79	6	16	1	-	-	2	-	-	-	-	4
Crawford	98	2	81	13	2	-	-	-	-	-	-	-	-	-	-
Delta	850	39	665	126	5	7	-	1	1	-	-	1	2	1	2
Dickinson	100	17	37	37	-	-	-	-	2	-	-	-	-	1	6
Eaton	765	74	373	273	15	7	4	-	3	1	-	-	2	1	12
Emmet	38	14	4	14	-	1	2	-	-	-	-	-	1	-	2
Genesee	4964	2502	1915	270	73	40	25	23	5	1	1	-	1	2	106
Gladwin	9	2	-	-	-	-	2	-	-	-	-	-	-	-	5
Gogebic	30	2	2	23	-	-	3	-	-	-	-	-	-	-	-
Gd. Traverse	233	26	120	30	3	7	3	2	1	7	-	-	2	-	32
Gratiot	355	13	264	44	11	8	-	2	5	1	-	2	-	-	5
Hillsdale	250	11	191	36		3	-	1	2	2	-	-	-	1	2
Houghton	707	7	400	288	1	2	3	-	2	1	-	-	-	-	3
Huron	31	3	11	3	2	4	4	1	-	-	-	1	-	-	2
Ingham	3175	1783	1146	60	63	51	16	13	2	7	-	-	1	1	32
Ionia	213	24	76	55	48	2	2	1	2	1	-	-	-	-	2
Iosco	136	10	84	11	4	1	1	1	1	-	-	-	-	-	23
Iron	95	5	84	3	-	1	1	1	-	-	-	-	-	-	-
Isabella	215	31	127	23	13	6	1	1	3	-	-	-	-	-	10
Jackson	756	469	165	54	14	14	2	14	4	1	-	-	-	-	19
Kalamazoo	1789	1132	375	120	27	16	16	10	2	3	5	-	4	1	78
Kalkaska	132	17	64	44	-	3	-	-	1	1	-	-	-	-	2
Kent	4683	1916	1582	853	82	54	53	43	8	9	-	-	7	2	74
Keweenaw	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.15 (Continued)

AREA	TOTAL	GONOR-RHEA	CHICK-EN POX	STREP[1]	HEPA-TITIS (ALL TYPES)	SAMO-NELLA INFEC-TIONS	TUBER-CULO-SIS	SYPHI-LIS	MUMPS	DYSEN-TERY BACIL-LARY	MEAS-LES	RU-BELLA	MENIN-GOCOC-CAL INFEC-TIONS	WHOOP-ING COUGH	ALL OTHER[2]
Lake	17	11	-	5	-	-	-	-	-	-	-	-	1	-	-
Lapeer	366	16	300	27	3	2	2	3	2	1	-	-	-	-	10
Leelanau	36	4	18	8	1	2	1	-	-	-	-	-	-	-	2
Lenawee	794	77	552	117	11	11	2	3	4	3	-	-	1	1	12
Livingston	841	44	458	265	6	20	2	3	2	-	-	-	3	2	36
Luce	74	1	56	16	-	-	1	-	-	-	-	-	-	-	-
Mackinac	122	-	116	3	1	-	-	1	-	-	-	-	-	-	1
Macomb	4436	491	2888	549	181	78	38	22	32	9	-	-	5	-	143
Manistee	66	2	36	23	1	-	3	1	-	-	-	-	-	-	-
Marquette	646	59	65	499	5	6	-	1	-	-	-	-	2	1	8
Mason	427	20	365	41	1	-	-	-	-	-	-	-	-	-	-
Mecosta	221	56	131	28	-	2	-	-	-	-	-	-	-	-	4
Menominee	304	4	176	112	-	4	1	1	1	-	-	-	-	1	4
Midland	362	38	272	31	3	9	2	-	-	-	-	-	-	-	7
Missaukee	191	1	177	6	4	-	1	-	1	-	-	-	-	-	1
Monroe	661	64	217	139	19	17	3	4	175	-	-	1	-	1	21
Montcalm	248	24	149	35	23	8	2	-	-	-	-	-	1	-	6
Montmorency	47	2	27	9	-	-	-	-	9	-	-	-	-	-	-
Muskegon	1420	722	440	103	18	39	15	6	9	15	-	-	3	1	49
Newaygo	278	11	226	30	5	5	-	-	-	1	-	-	-	-	-
Oakland	11414	1545	6549	2437	219	115	50	63	47	34	1	7	8	7	332
Oceana	113	2	86	10	6	-	1	1	-	1	-	-	-	-	6
Ogemaw	286	5	274	-	2	3	-	-	-	-	-	-	1	-	1
Ontonagon	11	2	8	1	-	-	-	-	-	-	-	-	-	-	-
Osceola	12	6	4	1	-	-	1	-	-	-	-	-	-	-	-
Oscoda	78	5	63	7	-	-	3	-	-	-	-	-	-	-	-
Otsego	154	10	99	32	10	1	-	-	-	-	-	-	-	-	2
Ottawa	1228	137	746	170	59	18	3	7	9	49	-	-	1	3	26
Presque Isle	88	-	83	-	-	-	-	-	2	1	-	-	-	-	2
Roscommon	107	4	57	35	-	2	-	-	2	6	-	-	-	-	1
Saginaw	2151	1255	637	91	33	33	30	15	3	1	-	2	1	3	47
St. Clair	1498	134	1160	121	20	23	11	2	11	2	-	-	-	1	13
St. Joseph	563	92	360	72	14	2	1	-	4	-	-	1	2	-	15
Sanilac	70	5	7	54	-	-	-	1	3	-	-	-	-	-	-
Schoolcraft	112	4	50	56	-	1	-	-	-	-	-	-	-	-	1
Shiawassee	690	26	481	130	3	6	2	1	8	1	-	-	1	-	31
Tuscola	339	40	239	38	7	2	-	2	-	4	-	2	-	-	5
Van Buren	697	34	458	133	37	9	8	3	2	7	-	-	1	-	5
Washtenaw	1500	891	383	-	54	39	17	16	5	10	-	1	2	-	82
Wayne	33743	18055	10810	2382	499	483	382	429	123	211	-	-	30	7	332
Wexford	60	17	24	11	4	-	-	1	2	-	-	-	-	-	1

[1] Streptococcal Sore Throat (including Scalet Fever).

[2] Includes: Meningitis, Aseptic - 1087; Meningitis, Excluding Aspectic - 203; Meningitis, (Influenzal) - 183; Encephalitis Infectious - 127; Staphylococcal Infections - 77; Dysentery, Amebic - 17; Malaria - 15; Typhoid Fever - 10; Rocky Mountain Spotted Fever - 7; Diarrhea Epidemic, (Infants < 1 Year) - 5; Undulant Fever - 3; Leprosy - 3; Food Poisonings - 2; Botulism; - 2; Psittacosis - 2; Ring Worm - 2; Tularemia - 1; Leptospirosis - 1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1983

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
	I INFECTIOUS AND PARASITIC DISEASES (001-139)	
3	Other salmonella infections	2
5	Other food poisoning (bacterial)	1
8	Intestinal infections due to other organisms	3
9	Ill-defined intestinal infections	5
11	Pulmonary tuberculosis	28
15	Tuberculosis of bones and joints	2
17	Tuberculosis of other organs	3
18	Miliary tuberculosis	6
27	Other zoonotic bacterial diseases	5
30	Leprosy	1
34	Streptococcal sore throat and scarlatina	1
36	Meningococcal infection	7
38	Septicemia	812
39	Actinomycotic infections	1
40	Other bacterial diseases	11
41	Bacterial infection in conditions classified elsewhere and of unspecified site	6
46	Slow virus infection of central nervous system	5
47	Meningitis due to enterovirus	3
48	Other enterovirus diseases of central nervous system	1
49	Other non-arthropod-borne viral diseases of central nervous system	4
52	Chickenpox	2
53	Herpes zoster	6
54	Herpes simplex	9
55	Measles	1
70	Viral hepatitis	29
71	Rabies	1
74	Specific diseases due to Coxsackie virus	1
75	Infectious mononucleosis	2
78	Other diseases due to viruses and Chlamydiae	10
79	Viral infection in conditions classified elsewhere and of unspecified site	10
93	Cardiovascular syphilis	1
94	Neurosyphilis	2
112	Candidiasis	15
114	Coccidioidomycosis	3
115	Histoplasmosis	1
117	Other mycoses	12
135	Sarcoidosis	13
136	Other and unspecified infectious and parasitic diseases	14
137	Late effects of tuberculosis	12
138	Late effects of acute poliomyelitis	4
	II. NEOPLASMS (140-239)	
140	Malignant neoplasm of lip	4
141	Malignant neoplasm of tongue	72
142	Malignant neoplasm of major salivary glands	18
143	Malignant neoplasm of gum	8
144	Malignant neoplasm of floor of mouth	14
145	Malignant neoplasm of other and unspecified parts of mouth	45
146	Malignant neoplasm of oropharynx	42
147	Malignant neoplasm of nasopharynx	25
148	Malignant neoplasm of hypopharynx	12
149	Malignant neoplasm of other and ill-defined sites within the lip, oral cavity and pharynx	26
150	Malignant neoplasm of oesophagus	325
151	Malignant neoplasm of stomach	495
152	Malignant neoplasm of small intestine, including duodenum	28
153	Malignant neoplasm of colon	1625
154	Malignant neoplasm of rectum, rectosigmoid junction and anus	332
155	Malignant neoplasm of liver and intrahepatic bile ducts	245
156	Malignant neoplasm of gallbladder and extrahepatic bile ducts	180
157	Malignant neoplasm of pancreas	831
158	Malignant neoplasm of retroperitoneum and peritoneum	19
159	Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum	84
160	Malignant neoplasm of nasal cavities, middle ear and accessory sinuses	23
161	Malignant neoplasm of larynx	152
162	Malignant neoplasm of trachea, bronchus and lung	4444
163	Malignant neoplasm of pleura	21
164	Malignant neoplasm of thymus, heart and mediastinum	17
170	Malignant neoplasm of bone and articular cartilage	48
171	Malignant neoplasm of connective and other soft tissue	94
172	Malignant melanoma of skin	168
173	Other malignant neoplasm of skin	61
174	Malignant neoplasm of female breast	1457
175	Malignant neoplasm of male breast	11
179	Malignant neoplasm of uterus, part unspecified	115
180	Malignant neoplasm of cervix uteri	148
181	Malignant neoplasm of placenta	1
182	Malignant neoplasm of body of uterus	115
183	Malignant neoplasm of ovary and other uterine adnexa	415
184	Malignant neoplasm of other and unspecified female genital organs	43
185	Malignant neoplasm of prostate	928
186	Malignant neoplasm of testis	21
187	Malignant neoplasm of penis and other male genital organs	11
188	Malignant neoplasm of bladder	374
189	Malignant neoplasm of kidney and other and unspecified urinary organs	379
190	Malignant neoplasm of eye	12
191	Malignant neoplasm of brain	388
192	Malignant neoplasm of other and unspecified parts of nervous system	13
193	Malignant neoplasm of thyroid gland	32
194	Malignant neoplasm of other endocrine glands and related structures	31
195	Malignant neoplasm of other and ill-defined sites	104
199	Malignant neoplasm without specification of site	1158
200	Lymphosarcoma and reticulosarcoma	162
201	Hodgkin's disease	94
202	Other malignant neoplasm of lymphoid and histiocytic tissue	376
203	Multiple myeloma and immunoproliferative neoplasms	279
204	Lymphoid leukemia	180
205	Myeloid leukemia	271
206	Monocytic leukemia	14
207	Other specified leukemia	17
208	Leukemia of unspecified cell type	170
211	Benign neoplasm of other parts of digestive system	3
212	Benign neoplasm of respiratory and intrathoracic organs	3
215	Other benign neoplasm of connective and other soft tissue	2
216	Benign neoplasm of skin	2
218	Uterine leiomyoma	1
220	Benign neoplasm of ovary	3
225	Benign neoplasm of brain and other parts of nervous system	29
227	Benign neoplasm of other endocrine glands and related structures	3
228	Hemangioma and lymphangioma, any site	5
233	Carcinoma in situ of breast and genitourinary system	1
235	Neoplasm of uncertain behavior of digestive and respiratory systems	7
236	Neoplasm of uncertain behavior of genitourinary organs	2
237	Neoplasm of uncertain behavior of endocrine glands and nervous system	11
238	Neoplasm of uncertain behavior of other and unspecified sites and tissues	24
239	Neoplasm of unspecified nature	50
	III. ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES AND IMMUNITY DISORDERS (240-279)	
242	Thyrotoxicosis with or without goitre	9
244	Acquired hypothyroidism	16
245	Thyroiditis	2
246	Other disorders of thyroid	1
250	Diabetes mellitus	1470
251	Other disorders of pancreatic internal secretion	7
252	Disorders of parathyroid gland	2
253	Disorders of the pituitary gland and its hypothalamic control	3
255	Disorders of adrenal glands	16
258	Polyglandular dysfunction and related disorders	1
259	Other endocrine disorders	5
260	Kwashiorkor	1
261	Nutritional marasmus	17
263	Other and unspecified protein-calorie malnutrition	37
266	Deficiency of B-complex components	1
269	Other nutritional deficiencies	7
270	Disorders of amino-acid transport and metabolism	2
272	Disorders of lipoid metabolism	10
273	Disorders of plasma protein metabolism	18
274	Gout	1
275	Disorders of mineral metabolism	5
276	Disorders of fluid, electrolyte and acid-base balance	171
277	Other and unspecified disorders of metabolism	43
278	Obesity and other hyperalimentation	45
279	Disorders involving the immune mechanism	11
	IV. DISEASES OF BLOOD AND BLOOD-FORMING ORGANS (280-289)	
281	Other deficiency anemias	9
282	Hereditary hemolytic anemias	20
283	Acquired hemolytic anemias	8
284	Aplastic anemia	61
285	Other and unspecified anemias	51
286	Coagulation defects	30
287	Purpura and other hemorrhagic conditions	33
288	Diseases of white blood cells	17
289	Other diseases of blood and blood-forming organs	44
	V. MENTAL DISORDERS (290-319)	
290	Senile and presenile organic psychotic conditions	58
291	Alcoholic psychoses	5
293	Transient organic psychotic conditions	1
295	Schizophrenic psychoses	3
296	Affective psychoses	1
298	Other, nonorganic psychoses	16
300	Neurotic disorders	3

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1983 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
303	Alcohol dependence syndrome	119
304	Drug dependence	16
305	Nondependent abuse of drugs	160
307	Special symptoms or syndromes not elsewhere classified	12
309	Adjustment reaction	1
310	Specific nonpsychotic mental disorders following organic brain damage	123
311	Depressive disorder, not elsewhere classified	7
312	Disturbance of conduct not elsewhere classified	2
318	Other specified mental retardation	9
319	Unspecified mental retardation	12
	VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS (320-389)	
320	Bacterial meningitis	23
322	Meningitis of unspecified cause	16
323	Encephalitis, myelitis and encephalomyelitis	11
324	Intracranial and intraspinal abscess	7
325	Phlebitis and thrombophlebitis of intracranial venous sinuses	1
330	Cerebral degenerations usually manifest in childhood	12
331	Other cerebral degenerations	163
332	Parkinson's disease	141
333	Other extrapyramidal disease and abnormal movement disorders	20
334	Spinocerebellar disease	8
335	Anterior horn cell disease	114
336	Other diseases of spinal cord	5
340	Multiple sclerosis	70
341	Other demyelinating diseases of central nervous system	1
342	Hemiplegia	11
343	Infantile cerebral palsy	25
344	Other paralytic syndromes	13
345	Epilepsy	111
348	Other conditions of brain	131
349	Other and unspecified disorders of the nervous system	11
350	Trigeminal nerve disorders	1
352	Disorders of other cranial nerves	1
356	Hereditary and idiopathic peripheral neuropathy	9
357	Inflammatory and toxic neuropathy	6
358	Myoneural disorders	7
359	Muscular dystrophies and other myopathies	41
	VII. DISEASES OF THE CIRCULATORY SYSTEM (390-459)	
391	Rheumatic fever with heart involvement	2
394	Diseases of mitral valve	123
395	Diseases of aortic valve	12
396	Diseases of mitral and aortic valves	45
397	Diseases of other endocardial structures	24
398	Other rheumatic heart disease	48
401	Essential hypertension	119
402	Hypertensive heart disease	578
403	Hypertensive renal disease	187
404	Hypertensive heart and renal disease	54
410	Acute myocardial infarction	11682
411	Other acute and subacute form of ischemic heart disease	57
412	Old myocardial infarction	43
413	Angina pectoris	30
414	Other forms of chronic ischemic heart disease	10380
415	Acute pulmonary heart disease	331
416	Chronic pulmonary heart disease	67
417	Other diseases of pulmonary circulation	1
420	Acute pericarditis	2
421	Acute and subacute endocarditis	38
422	Acute myocarditis	10
423	Other diseases of pericardium	16
424	Other diseases of endocardium	281
425	Cardiomyopathy	542
426	Conduction disorders	31
427	Cardiac dysrhythmias	1182
428	Heart failure	1173
429	Ill-defined descriptions and complications of heart disease	3582
430	Subarachnoid hemorrhage	253
431	Intracerebral hemorrhage	707
432	Other and unspecified intracranial hemorrhage	85
433	Occlusion and stenosis of precerebral arteries	55
434	Occlusion of cerebral arteries	1081
435	Transient cerebral ischemia	17
436	Acute but ill-defined cerebrovascular disease	2764
437	Other and ill-defined cerebrovascular disease	463
438	Late effects of cerebrovascular disease	287
440	Atherosclerosis	1268
441	Aortic aneurysm	568
442	Other aneurysm	24
443	Other peripheral vascular disease	71
444	Arterial embolism and thrombosis	62
446	Polyarteritis nodosa and allied conditions	26
447	Other disorders of arteries and arterioles	37
448	Diseases of capillaries	1
451	Phlebitis and thrombophlebitis	76
452	Portal vein thrombosis	1
453	Other venous embolism and thrombosis	19
454	Varicose veins of lower extremities	3
456	Varicose veins of other sites	19
457	Noninfective disorders of lymphatic channels	3
458	Hypotension	33
459	Other disorders of circulatory system	25
	VIII. DISEASES OF THE RESPIRATORY SYSTEM (460-519)	
464	Acute laryngitis and tracheitis	6
465	Acute upper respiratory infections of multiple or unspecified sites	12
466	Acute bronchitis and bronchiolitis	14
475	Peritonsillar abscess	1
478	Other diseases of upper respiratory tract	11
480	Viral pneumonia	19
481	Pneumococcal pneumonia	95
482	Other bacterial pneumonia	75
483	Pneumonia due to other specified organism	10
485	Bronchopneumonia, organism unspecified	241
486	Pneumonia, organism unspecified	1560
487	Influenza	95
490	Bronchitis, not specified as acute or chronic	17
491	Chronic bronchitis	115
492	Emphysema	537
493	Asthma	126
494	Bronchiectasis	20
496	Chronic airways obstruction, not elsewhere classified	1651
500	Coalworkers' pneumoconiosis	9
501	Asbestosis	3
502	Pneumoconiosis due to other silica or silicates	5
505	Pneumoconiosis, unspecified	4
506	Respiratory conditions due to chemical fumes and vapors	2
507	Pneumonitis due to solids and liquids	166
508	Respiratory conditions due to other and unspecified external agents	1
510	Empyema	14
511	Pleurisy	23
512	Pneumothorax	9
513	Abscess of lung and mediastinum	31
514	Pulmonary congestion and hypostasis	28
515	Postinflammatory pulmonary fibrosis	155
516	Other alveolar and parietoalveolar pneumopathy	46
518	Other diseases of lung	192
519	Other diseases of respiratory system	37
	IX. DISEASES OF THE DIGESTIVE SYSTEM (520-579)	
526	Diseases of the jaws	1
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	1
530	Diseases of oesophagus	30
531	Gastric ulcer	76
532	Duodenal ulcer	82
533	Peptic ulcer, site unspecified	84
534	Gastrojejunal ulcer	3
535	Gastritis and duodenitis	34
536	Disorders of function of stomach	1
537	Other disorders of stomach and duodenum	15
540	Acute appendicitis	14
541	Appendicitis, unqualified	1
550	Inguinal hernia	6
551	Other hernia of abdominal cavity, with gangrene	4
552	Other hernia of abdominal cavity with obstruction, without mention of gangrene	14
553	Other hernia of abdominal cavity without mention of obstruction or gangrene	17
555	Regional enteritis	12
556	Idiopathic proctocolitis	11
557	Vascular insufficiency of intestine	221
558	Other noninfective gastroenteritis and colitis	43
560	Intestinal obstruction without mention of hernia	162
562	Diverticula of intestine	112
564	Functional digestive disorders, not elsewhere classified	3
566	Abscess of anal and rectal regions	2
567	Peritonitis	48
568	Other disorders of peritoneum	12
569	Other disorders of intestine	62
570	Acute and subacute necrosis of liver	32
571	Chronic liver disease and cirrhosis	1250
572	Liver abscess and sequelae of chronic liver disease	124
573	Other disorders of liver	43
574	Cholelithiasis	48
575	Other disorders of gallbladder	49
576	Other disorders of biliary tract	33
577	Diseases of pancreas	119
578	Gastrointestinal hemorrhage	168
579	Intestinal malabsorption	4
	X. DISEASES OF THE GENITOURINARY SYSTEM (580-629)	
580	Acute glomerulonephritis	5
581	Nephrotic syndrome	10

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1983 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
582	Chronic glomerulonephritis	43
583	Nephritis and nephropathy, not specified as acute or chronic	18
584	Acute renal failure	113
585	Chronic renal failure	168
586	Renal failure, unspecified	337
587	Renal sclerosis, unspecified	3
588	Disorders resulting from impaired renal function	8
589	Small kidney of unknown cause	1
590	Infections of kidney	42
591	Hydronephrosis	5
592	Calculus of kidney and ureter	8
593	Other disorders of kidney and ureter	50
595	Cystitis	8
596	Other disorders of bladder	5
598	Urethral stricture	5
599	Other disorders of urethra and urinary tract	214
600	Hyperplasia of prostate	18
602	Other disorders of prostate	7
607	Disorders of penis	1
608	Other disorders of male genital organs	3
614	Inflammatory disease of ovary, fallopian tube, pelvic cellular tissue and peritoneum	4
616	Inflammatory disease of cervix, vagina and vulva	2
619	Fistulae involving female genital tract	1
621	Disorders of uterus, not elsewhere classified	1
	XI. COMPLICATIONS OF PREGNANCY, CHILDBIRTH, AND THE PUERPERIUM (630-676)	
633	Ectopic pregnancy	2
641	Antepartum hemorrhage, abruptio placentae, and placenta praevia	1
669	Other complications of labor and delivery, not elsewhere classified	1
674	Other and unspecified complications of the puerperium, not elsewhere classified	2
	XII. DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (680-709)	
682	Other cellulitis and abscess	14
686	Other local infections of skin and subcutaneous tissue	5
694	Bullous dermatoses	2
695	Erythematous conditions	4
705	Disorders of sweat glands	1
707	Chronic ulcer of skin	113
709	Other disorders of skin and subcutaneous tissue	2
	XIII. DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE (710-739)	
710	Diffuse diseases of connective tissue	71
711	Arthropathy associated with infections	3
714	Rheumatoid arthritis and other inflammatory polyarthropathies	47
715	Osteoarthrosis and allied disorders	13
716	Other and unspecified arthropathies	6
720	Ankylosing spondylitis and other inflammatory spondylopathies	5
721	Spondylosis and allied disorders	1
723	Other disorders of cervical region	1
725	Polymyalgia rheumatica	1
728	Disorders of muscle, ligament and fascia	7
729	Other disorders of soft tissues	5
730	Osteomyelitis, periostitis and other infections involving bone	11
731	Osteitis deformans and osteopathies associated with other disorders classified elsewhere	3
732	Osteochondropathies	1
733	Other disorders of bone and cartilage	8
737	Curvature of spine	4
	XIV. CONGENITAL ANOMALIES (740-759)	
740	Anencephalus and similar anomalies	22
741	Spina bifida	6
742	Other congenital anomalies of nervous system	47
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	58
746	Other congenital anomalies of heart	117
747	Other congenital anomalies of circulatory system	51
748	Congenital anomalies of respiratory system	28
749	Cleft palate and cleft lip	2
750	Other congenital anomalies of upper alimentary tract	1
751	Other congenital anomalies of digestive system	13
753	Congenital anomalies of urinary system	23
754	Certain congenital musculoskeletal deformities	1
755	Other congenital anomalies of limbs	1
756	Other congenital musculoskeletal anomalies	30
757	Congenital anomalies of the integument	4
758	Chromosomal anomalies	28
759	Other and unspecified congenital anomalies	51
	XV. CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (760-779)	
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	4
761	Fetus or newborn affected by maternal complications of pregnancy	57
762	Fetus or newborn affected by complications of placenta, cord and membranes	31
763	Fetus or newborn affected by other complications of labor and delivery	3
764	Slow fetal growth and fetal malnutrition	2
765	Disorders relating to short gestation and unspecified low birthweight	134
767	Birth trauma	23
768	Intrauterine hypoxia and birth asphyxia	52
769	Respiratory distress syndrome	174
770	Other respiratory conditions of fetus and newborn	156
771	Infections specific to the perinatal period	26
772	Fetal and neonatal hemorrhage	21
773	Hemolytic disease of fetus or newborn, due to isoimmunization	4
775	Endocrine and metabolic disturbances specific to the fetus and newborn	1
776	Hematological disorders of fetus and newborn	6
777	Perinatal disorders of digestive system	7
778	Conditions involving the integument and temperature regulation of fetus and newborn	4
779	Other and ill-defined conditions originating in the perinatal period	117
	XVI. SYMPTOMS, SIGNS AND ILL-DEFINED CONDITIONS (780-799)	
780	General symptoms	9
783	Symptoms concerning nutrition, metabolism and development	1
785	Symptoms involving cardiovascular system	16
786	Symptoms involving respiratory system and other chest symptoms	10
787	Symptoms involving digestive system	1
788	Symptoms involving urinary system	1
789	Other symptoms involving abdomen and pelvis	2
790	Nonspecific findings on examination of blood	3
796	Other nonspecific abnormal findings	2
797	Senility without mention of psychosis	19
798	Sudden death, cause unknown	[illegible]
799	Other ill-defined and unknown causes of morbidity and mortality	[illegible]
	XVII. EXTERNAL CAUSES OF INJURY AND POISONING (E800-E999)	
E801	Railway accident involving collision with other object	2
E804	Fall in, on or from railway train	1
E805	Hit by rolling stock	5
E810	Motor vehicle traffic accident involving collision with train	23
E812	Other motor vehicle traffic accident involving collision with another motor vehicle	544
E813	Motor vehicle traffic accident involving collision with other vehicle	43
E814	Motor vehicle traffic accident involving collision with pedestrian	264
E815	Other motor vehicle traffic accident involving collision on the highway	148
E816	Motor vehicle traffic accident due to loss of control, without collision on the highway	274
E818	Other noncollision motor vehicle traffic accident	26
E819	Motor vehicle traffic accident of unspecified nature	62
E820	Nontraffic accident involving motor-driven snow vehicle	6
E821	Nontraffic accident involving other off-road motor vehicle	3
E822	Other motor vehicle nontraffic accident involving collision with moving object	14
E823	Other motor vehicle nontraffic accident involving collision with stationary object	3
E825	Other motor vehicle nontraffic accident of other and unspecified nature	8
E826	Pedal cycle accident	3
E827	Animal-drawn vehicle accident	1
E828	Accident involving animal being ridden	1
E830	Accident to watercraft causing submersion	18
E831	Accident to watercraft causing other injury	3
E832	Other accidental submersion or drowning in water transport accident	23
E833	Fall on stairs or ladders in water transport	1
E838	Other and unspecified water transport accident	3
E840	Accident to powered aircraft at takeoff or landing	2
E841	Accident to powered aircraft, other and unspecified	15
E842	Accident to unpowered aircraft	1
E850	Accidental poisoning by analgesics, antipyretics, antirheumatics	9
E851	Accidental poisoning by barbiturates	2
E853	Accidental poisoning by tranquilizers	4
E854	Accidental poisoning by other psychotropic agents	6
E855	Accidental poisoning by other drugs acting on central and autonomic nervous systems	3
E856	Accidental poisoning by antibiotics	3
E857	Accidental poisoning by anti-infectives	1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1983 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
E858	Accidental poisoning by other drugs	47
E860	Accidental poisoning by alcohol, not elsewhere classified	3
E862	Accidental poisoning by petroleum products, other solvents and their vapors, not elsewhere classified	3
E866	Accidental poisoning by other and unspecified solid and liquid substances	2
E867	Accidental poisoning by gas distributed by pipeline	1
E868	Accidental poisoning by other utility gas and other carbon monoxide	51
E869	Accidental poisoning by other gases and vapors	6
E870	Accidental cut, puncture, perforation or hemorrhage during medical care	8
E876	Other and unspecified misadventures during medical care	2
E878	Surgical operation and other surgical procedures as the cause of abnormal reaction of patient, or of later complication, without mention of misadven	38
E879	Other procedures, without mention of misadventure at the time of procedure, as the cause of abnormal reaction of patient, or of later complication	4
E880	Fall on or from stairs or steps	62
E881	Fall on or from ladders or scaffolding	17
E882	Fall from or out of building or other structure	23
E883	Fall into hole or other opening in surface	5
E884	Other fall from one level to another	22
E885	Fall on same level from slipping, tripping or stumbling	10
E887	Fracture, cause unspecified	148
E888	Other and unspecified fall	186
E890	Conflagration in private dwelling	124
E891	Conflagration in other and unspecified building or structure	7
E893	Accident caused by ignition of clothing	5
E894	Ignition of highly inflammable material	6
E895	Accident caused by controlled fire in private dwelling	1
E898	Accident caused by other specified fire and flames	3
E899	Accident caused by unspecified fire	6
E900	Excessive heat	6
E901	Excessive cold	42
E902	High and low air pressure and changes in air pressure	1
E904	Hunger, thirst, exposure, neglect	14
E905	Venomous animals and plants as the cause of poisoning and toxic reactions	1
E906	Other injury caused by animals	3
E907	Lightning	1
E910	Accidental drowning and submersion	172
E911	Inhalation and ingestion of food causing obstruction of respiratory tract or suffocation	81
E912	Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation	36
E913	Accidental mechanical suffocation	37
E916	Struck accidentally by falling object	20
E917	Striking against or struck accidentally by objects or persons	4
E919	Accidents caused by machinery	42
E920	Accidents caused by cutting and piercing instruments or objects	3
E921	Accident caused by explosion of pressure vessel	2
E922	Accident caused by firearm missile	32
E923	Accident caused by explosive material	7
E924	Accident caused by hot substance or object, caustic or corrosive material and steam	6
E925	Accident caused by electric current	20
E928	Other and unspecified environmental and accidental causes	22
E929	Late effects of accidental injury	27
E930	Antibiotics	1
E931	Other anti-infectives	1
E947	Other and unspecified drugs and medicaments	8
E950	Suicide and selfinflicted poisoning by solid or liquid substances	109
E952	Suicide and selfinflicted poisoning by other gases and vapors	143
E953	Suicide and selfinflicted injury by hanging, strangulation and suffocation	168
E954	Suicide and selfinflicted injury by submersion (drowning)	17
E955	Suicide and selfinflicted injury by firearms and explosives	588
E956	Suicide and selfinflicted injury by cutting and piercing instruments	15
E957	Suicide and selfinflicted injuries by jumping from high place	18
E958	Suicide and selfinflicted injury by other and unspecified means	24
E959	Late effects of selfinflicted injury	1
E960	Fight, brawl, rape	1
E963	Assault by hanging and strangulation	63
E964	Assault by submersion (drowning)	3
E965	Assault by firearms and explosives	593
E966	Assault by cutting and piercing instrument	163
E967	Child battering and other maltreatment	12
E968	Assault by other and unspecified means	101
E969	Late effects of injury purposely inflicted by other person	2
E970	Injury due to legal intervention by firearms	15
E980	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted	38
E982	Poisoning by other gases, undetermined whether accidentally or purposely inflicted	3

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
E983	Hanging, strangulation or suffocation, undetermined whether accidentally or purposely inflicted	1
E984	Submersion (drowning), undetermined whether accidentally or purposely inflicted	11
E985	Injury by firearms and explosives, undetermined whether accidentally or purposely inflicted	6
E986	Injury by cutting and piercing instruments, undetermined whether accidentally or purposely inflicted	1
E987	Falling from high place, undetermined whether accidentally or purposely inflicted	2
E988	Injury by other and unspecified means, undetermined whether accidentally or purposely inflicted	24
E989	Late effects of injury due to war operations	1

Table 4.17
Population by Age, Race, and Sex, Michigan Residents, 1983

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	137015	69835	67180	112166	57346	54820	24849	12489	12360
1-4	490601	251292	239309	395539	203375	192164	95062	47917	47145
5-9	642619	329402	313217	502483	259006	243477	140136	70396	69740
10-14	721939	369496	352443	586854	301602	285252	135085	67894	67191
15-19	887885	449895	437990	751404	382311	369094	136481	67585	68896
20-24	935873	467909	467964	797809	402849	394960	138065	65061	73004
25-29	857847	424542	433305	725374	364387	360987	132473	60155	72318
30-34	763919	375912	388007	648908	323374	325534	115011	52538	62473
35-39	580317	286573	293744	501355	249475	251880	78962	37098	41864
40-44	431368	210255	221113	375525	184851	190674	55843	25405	30438
45-49	406081	195938	210144	352580	172308	180272	53501	23630	29872
50-54	475588	232048	243540	416932	205122	211810	58657	26926	31731
55-59	479551	228117	251434	423804	201931	221873	55747	26186	29560
60-64	402486	186420	216067	358200	166264	191936	44286	20156	24131
65-69	329940	147435	182506	293338	131345	161993	36602	16089	20513
70-74	242505	101697	140808	217490	90896	126594	25015	10801	14214
75-79	172490	66699	105792	155334	59588	95746	17156	7110	10046
80-84	108774	37084	71690	99676	33596	66079	9098	3487	5611
85+	88679	26568	62110	82244	24552	57693	6435	2017	4418
TOTAL	9155480	4457118	4698362	7797017	3814179	3982837	1358463	642939	715525

Source: The estimate of the total state population was provided by the Department of Management and Budget, Office of Revenue and Tax Analysis. The breakdown of the total population by age, race, and sex was prepared by the Department of Public Health, Office of the State Registrar and Center for Health Statistics. See Technical Notes.

Table 4.18
Population Changes by County, Michigan Residents, 1973-1983

AREA	POPULATION ESTIMATE JULY 1, 1973	POPULATION ESTIMATE JULY 1, 1983	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
Michigan	9072000	9155480	83480	0.9	633359	-549879
Alcona	8400	9969	1569	18.7	-185	1754
Alger	8400	8683	283	3.4	302	-19
Allegan	71200	82581	11381	16.0	6780	4601
Alpena	31700	31633	-67	-0.2	2055	-2122
Antrim	14100	16678	2578	18.3	657	1921
Arenac	12500	15174	2674	21.4	628	2046
Baraga	8000	8446	446	5.6	282	164
Barry	41000	45881	4881	11.9	3019	1862
Bay	119800	117444	-2356	-2.0	8881	-11237
Benzie	9500	11029	1529	16.1	311	1218
Berrien	170700	165741	-4959	-2.9	12490	-17449
Branch	39900	39057	-843	-2.1	2429	-3272
Calhoun	142300	139965	-2335	-1.6	8778	-11113
Cass	45800	47102	1302	2.8	2944	-1642
Charlevoix	17900	19822	1922	10.7	1271	651
Cheboygan	18600	21190	2590	13.9	1048	1542
Chippewa	35200	29071	-6129	-17.4	2495	-8624
Clare	19500	24426	4926	25.3	622	4304
Clinton	50900	54844	3944	7.7	5163	-1219
Crawford	7600	9775	2175	28.6	609	1566
Delta	37500	39565	2065	5.5	2019	46
Dickinson	24300	25385	1085	4.5	486	599
Eaton	75300	88054	12754	16.9	6464	6290
Emmet	20500	23770	3270	16.0	1220	2050
Genesee	451800	443681	-8119	-1.8	40605	-48724
Gladwin	15600	21117	5517	35.4	758	4759
Gogebic	21100	19549	-1551	-7.4	-556	-995
Gd. Traverse	44400	56663	12263	27.6	3956	8307
Gratiot	40400	39909	-491	-1.2	2730	-3221
Hillsdale	39400	41723	2323	5.9	2481	-158
Houghton	36900	38790	1890	5.1	538	1352
Huron	35800	35707	-93	-0.3	1649	-1742
Ingham	268200	275341	7141	2.7	26769	-19628
Ionia	47700	52321	4621	9.7	4489	132
Iosco	27600	30633	3033	11.0	2818	215
Iron	13500	13588	88	0.7	-319	407
Isabella	48900	54789	5889	12.0	4157	1732
Jackson	145500	148003	2503	1.7	9259	-6756
Kalamazoo	201100	217630	16530	8.2	16140	390
Kalkaska	6400	11341	4941	77.2	918	4023
Kent	418000	460394	42394	10.1	41094	1300
Keweenaw	2100	2001	-99	-4.7	-103	4
Lake	6600	8526	1926	29.2	-93	2019
Lapeer	57500	68664	11164	19.4	6281	4883

Table 4.18
Population Changes by County, Michigan Residents, 1973-1983 (Cont.)

AREA	POPULATION ESTIMATE JULY 1, 1973	POPULATION ESTIMATE JULY 1, 1983	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
Leelanau	12300	14240	1940	15.8	519	1421
Lenawee	85700	88138	2438	2.8	6923	-4485
Livingston	69600	97178	27578	39.6	7433	20145
Luce	6900	6014	-886	-12.8	314	-1200
Mackinac	10200	10041	-159	-1.6	319	-478
Macomb	648400	687583	39183	6.0	48603	-9420
Manistee	21500	22211	711	3.3	252	459
Marquette	68600	72694	4094	6.0	7883	-3789
Mason	25100	26369	1269	5.1	1074	195
Mecosta	32900	36665	3765	11.4	2106	1659
Menominee	24900	25519	619	2.5	711	-92
Midland	66400	74274	7874	11.9	6969	905
Missaukee	7900	10299	2399	30.4	845	1554
Monroe	124300	128666	4366	3.5	10503	-6137
Montcalm	42400	49348	6948	16.4	3217	3731
Montmorency	6300	7886	1586	25.2	135	1451
Muskegon	157100	156380	-720	-0.5	11468	-12188
Newaygo	30200	35862	5662	18.7	2022	3640
Oakland	938100	1006273	68173	7.3	65561	2612
Oceana	19700	21588	1888	9.6	1521	367
Ogemaw	13400	16481	3081	23.0	425	2656
Ontonagon	11200	10000	-1200	-10.7	222	-1422
Osceola	16800	19677	2877	17.1	1167	1710
Oscoda	5500	6792	1292	23.5	61	1231
Otsego	12300	15283	2983	24.3	1213	1770
Ottawa	136600	161007	24407	17.9	15495	8912
Presque Isle	13900	13982	82	0.6	664	-582
Roscommon	12900	17771	4871	37.8	-29	4900
Saginaw	225200	220831	-4369	-1.9	19773	-24142
St. Clair	128500	138102	9602	7.5	8055	1547
St. Joseph	51000	56751	5751	11.3	4146	1605
Sanilac	38000	39488	1488	3.9	2147	-659
Schoolcraft	8400	8394	-6	-0.1	209	-215
Shiawassee	67000	68651	1651	2.5	6235	-4584
Tuscola	51900	55092	3192	6.2	4226	-1034
Van Buren	61000	67077	6077	10.0	4738	1339
Washtenaw	246800	269105	22305	9.0	23753	-1448
Wayne	2593600	2252102	-341498	-13.2	126692	-468190
Wexford	22000	26011	4011	18.2	1521	2490
County Not Stated	–	–	–	–	-71	71

Table 4.19
Abridged Life Table, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	$\mathring{e}$x(6)[1]
0-1	0.01148	100000	1148	98985	7379574	73.8
1-5	0.00221	98852	218	394868	7280589	73.7
5-10	0.00116	98634	114	492855	6885722	69.8
10-15	0.00140	98520	137	492303	6392867	64.9
15-20	0.00349	98382	343	491120	5900564	60.0
20-25	0.00459	98040	449	489112	5409444	55.2
25-30	0.00538	97590	524	486684	4920332	50.4
30-35	0.00681	97066	660	483741	4433649	45.7
35-40	0.00860	96405	829	480113	3949907	41.0
40-45	0.01489	95576	1423	474575	3469794	36.3
45-50	0.02153	94154	2027	466002	2995220	31.8
50-55	0.03104	92127	2859	453977	2529218	27.5
55-60	0.04899	89268	4373	436239	2075241	23.2
60-65	0.08067	84895	6848	408441	1639001	19.3
65-70	0.12276	78047	9581	367436	1230560	15.8
70-75	0.18082	68466	12380	312392	863124	12.6
75-80	0.25730	56086	14431	244915	550732	9.8
80-85	0.36169	41656	15066	170211	305817	7.3
85+	1.00000	26589	26589	135606	135606	5.1

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.20
Abridged Life Table for Males, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	$\mathring{e}$x(6)[1]
0-1	0.01244	100000	1244	98900	7045957	70.5
1-5	0.00231	98756	228	394473	6947057	70.3
5-10	0.00135	98528	133	492274	6552584	66.5
10-15	0.00172	98395	169	491627	6060310	61.6
15-20	0.00499	98226	490	490013	5568683	56.7
20-25	0.00702	97736	686	487020	5078670	52.0
25-30	0.00780	97050	756	483406	4591650	47.3
30-35	0.00942	96294	906	479270	4108244	42.7
35-40	0.01129	95387	1076	474442	3628974	38.0
40-45	0.01954	94311	1842	467259	3154532	33.4
45-50	0.02766	92469	2557	456315	2687272	29.1
50-55	0.03987	89912	3584	441218	2230957	24.8
55-60	0.06406	86328	5530	418798	1789739	20.7
60-65	0.10278	80798	8304	384517	1370941	17.0
65-70	0.16154	72494	11710	334524	986424	13.6
70-75	0.24169	60784	14690	267976	651899	10.7
75-80	0.33563	46093	15470	191683	383923	8.3
80-85	0.46262	30623	14167	116539	192240	6.3
85+	1.00000	16457	16457	75701	75701	4.6

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.21
Abridged Life Table for Females, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	$\mathring{e}$x(6)[1]
0-1	0.01048	100000	1048	99074	7709864	77.1
1-5	0.00211	98952	208	395278	7610789	76.9
5-10	0.00096	98744	95	493459	7215511	73.1
10-15	0.00105	98649	104	493008	6722052	68.1
15-20	0.00194	98546	191	492274	6229044	63.2
20-25	0.00215	98355	211	491268	5736770	58.3
25-30	0.00300	98144	294	490027	5245503	53.4
30-35	0.00427	97850	418	488264	4755476	48.6
35-40	0.00598	97432	582	485827	4267212	43.8
40-45	0.01045	96850	1011	481914	3781385	39.0
45-50	0.01578	95838	1512	475644	3299471	34.4
50-55	0.02256	94326	2127	466673	2823828	29.9
55-60	0.03513	92199	3238	453591	2357154	25.6
60-65	0.06120	88961	5444	432090	1903564	21.4
65-70	0.09028	83517	7539	399726	1471473	17.6
70-75	0.13414	75978	10192	355632	1071747	14.1
75-80	0.20373	65786	13403	296611	716115	10.9
80-85	0.30325	52384	15885	222411	419504	8.0
85+	1.00000	36499	36499	197092	197092	5.4

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.22
Abridged Life Table for Whites, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	$\mathring{e}$x(6)[1]
0-1	0.00938	100000	938	99176	7464508	74.6
1-5	0.00193	99062	191	395785	7365333	74.4
5-10	0.00112	98871	110	494052	6969547	70.5
10-15	0.00123	98761	121	493545	6475495	65.6
15-20	0.00325	98640	320	492456	5981950	60.6
20-25	0.00400	98320	392	490642	5489495	55.8
25-30	0.00442	97928	432	488579	4998853	51.0
30-35	0.00515	97495	502	486267	4510273	46.3
35-40	0.00676	96993	655	483477	4024007	41.5
40-45	0.01265	96338	1218	478896	3540530	36.8
45-50	0.01948	95120	1853	471259	3061634	32.2
50-55	0.02794	93268	2605	460285	2590375	27.8
55-60	0.04481	90662	4062	443990	2130090	23.5
60-65	0.07631	86600	6608	417643	1686099	19.5
65-70	0.12037	79993	9628	377116	1268457	15.9
70-75	0.17731	70365	12476	321714	891341	12.7
75-80	0.25592	57889	14815	253043	569627	9.8
80-85	0.36066	43074	15535	176135	316584	7.3
85+	1.00000	27539	27539	140449	140449	5.1

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.23
Abridged Life Table for White Males, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	$\hat{e}$x(6)[1]
0-1	0.01015	100000	1015	99107	7140768	71.4
1-5	0.00213	98985	210	395436	7041661	71.1
5-10	0.00128	98775	126	493530	6646225	67.3
10-15	0.00153	98649	150	492938	6152695	62.4
15-20	0.00455	98499	447	491471	5659757	57.5
20-25	0.00614	98052	602	488791	5168286	52.7
25-30	0.00643	97450	626	485701	4679495	48.0
30-35	0.00709	96823	686	482437	4193795	43.3
35-40	0.00829	96137	797	478879	3711358	38.6
40-45	0.01651	95340	1574	473085	3232479	33.9
45-50	0.02476	93767	2321	463382	2759394	29.4
50-55	0.03565	91446	3260	449675	2296012	25.1
55-60	0.05876	88186	5181	428987	1846338	20.9
60-65	0.09777	83004	8115	396148	1417351	17.1
65-70	0.15983	74889	11969	345972	1021203	13.6
70-75	0.23956	62920	15073	277787	675231	10.7
75-80	0.33736	47847	16141	198809	397444	8.3
80-85	0.46428	31706	14720	120501	198635	6.3
85+	1.00000	16986	16986	78134	78134	4.6

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.24
Abridged Life Table for White Females, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	$\hat{e}$x(6)[1]
0-1	0.00857	100000	857	99248	7783082	77.8
1-5	0.00173	99143	171	396150	7683834	77.5
5-10	0.00095	98971	93	494600	7287683	73.6
10-15	0.00092	98878	90	494184	6793083	68.7
15-20	0.00190	98788	187	493490	6298899	63.8
20-25	0.00180	98601	177	492571	5805409	58.9
25-30	0.00238	98424	234	491561	5312838	54.0
30-35	0.00323	98189	316	490214	4821277	49.1
35-40	0.00523	97873	512	488201	4331063	44.3
40-45	0.00889	97361	865	484829	3842862	39.5
45-50	0.01441	96497	1390	479232	3358033	34.8
50-55	0.02042	95106	1941	471009	2878801	30.3
55-60	0.03194	93165	2975	459059	2407792	25.8
60-65	0.05734	90190	5171	438944	1948733	21.6
65-70	0.08717	85018	7410	407588	1509789	17.8
70-75	0.12981	77608	10074	364137	1102202	14.2
75-80	0.20081	67534	13561	305060	738064	10.9
80-85	0.30154	53973	16275	229432	433004	8.0
85+	1.00000	37698	37698	203571	203571	5.4

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.25
Abridged Life Table for All Other, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(G)[1]
0-1	0.02097	100000	2097	98125	6889904	68.9
1-5	0.00336	97903	329	390755	6791779	69.4
5-10	0.00132	97574	129	487518	6401024	65.6
10-15	0.00211	97446	205	486786	5913506	60.7
15-20	0.00483	97240	469	485147	5426720	55.8
20-25	0.00801	96771	775	482032	4941573	51.1
25-30	0.01060	95996	1017	477595	4459541	46.5
30-35	0.01610	94979	1528	471258	3981946	41.9
35-40	0.02026	93451	1893	462773	3510687	37.6
40-45	0.02983	91558	2731	451214	3047915	33.3
45-50	0.03493	88827	3102	436753	2596701	29.2
50-55	0.05279	85725	4525	418022	2159948	25.2
55-60	0.08025	81199	6515	390558	1741926	21.5
60-65	0.11522	74684	8604	352502	1351368	18.1
65-70	0.14172	66080	9365	307684	998866	15.1
70-75	0.21076	56715	11953	254256	691182	12.2
75-80	0.26963	44762	12069	193688	436926	9.8
80-85	0.37297	32693	12193	132539	243238	7.4
85+	1.00000	20500	20500	110699	110699	5.4

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.26
Abridged Life Table for Other Males, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.02298	100000	2298	97951	6483313	64.8
1-5	0.00309	97702	301	390063	6385361	65.4
5-10	0.00164	97401	159	486566	5995299	61.6
10-15	0.00258	97242	250	485701	5508733	56.6
15-20	0.00753	96991	729	483330	5023032	51.8
20-25	0.01246	96262	1199	478477	4539702	47.2
25-30	0.01601	95063	1521	471723	4061225	42.7
30-35	0.02362	93542	2209	462462	3589502	38.4
35-40	0.03120	91332	2850	449838	3127040	34.2
40-45	0.04128	88483	3652	433549	2677202	30.3
45-50	0.04857	84831	4120	414293	2243653	26.4
50-55	0.07141	80711	5763	389910	1829360	22.7
55-60	0.10396	74947	7791	356059	1439450	19.2
60-65	0.14303	67156	9605	312247	1083392	16.1
65-70	0.17532	57551	10090	263096	771144	13.4
70-75	0.25937	47462	12310	206782	508048	10.7
75-80	0.32100	35152	11284	147204	301266	8.6
80-85	0.44636	23868	10654	91953	154061	6.5
85+	1.00000	13215	13215	62108	62108	4.7

[1] Definitions of life table values are contained in the Technical Notes.

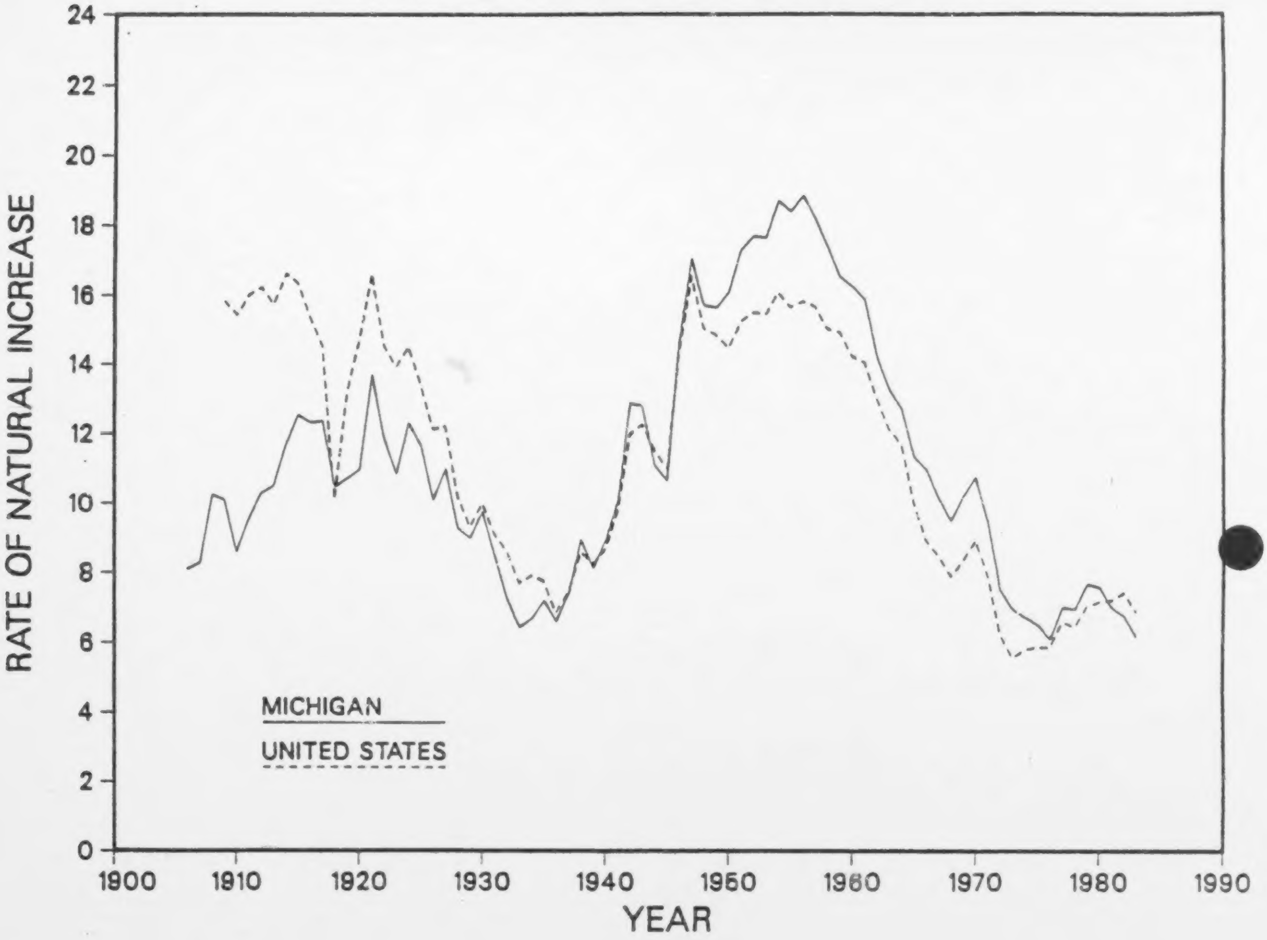
Table 4.27
Abridged Life Table for Other Females, Michigan Residents, 1983

AGE	nqx(1)[1]	lx(2)[1]	ndz(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.01893	100000	1893	98305	7292101	72.9
1-5	0.00364	98107	357	391454	7193796	73.3
5-10	0.00101	97750	98	488479	6802342	69.6
10-15	0.00164	97652	160	487883	6313863	64.7
15-20	0.00218	97492	212	486978	5825980	59.8
20-25	0.00404	97280	392	485497	5339002	54.9
25-30	0.00607	96888	588	483081	4853505	50.1
30-35	0.00972	96300	936	479244	4370424	45.4
35-40	0.01046	95364	997	474527	3891180	40.8
40-45	0.02018	94366	1904	467327	3416653	36.2
45-50	0.02400	92463	2219	457060	2949326	31.9
50-55	0.03671	90244	3313	443539	2492267	27.6
55-60	0.05874	86931	5106	422758	2048727	23.6
60-65	0.09133	81825	7473	391155	1625969	19.9
65-70	0.11447	74353	8511	351287	1234815	16.6
70-75	0.17187	65842	11316	301771	883528	13.4
75-80	0.23111	54526	12601	241591	581757	10.7
80-85	0.32323	41924	13551	175602	340167	8.1
85+	1.00000	28373	28373	164564	164564	5.8

[1] Definitions of life table values are contained in the Technical Notes.

FIGURE 4.1

RATE OF NATURAL INCREASE,[1] MICHIGAN, 1906-1983, AND THE UNITED STATES, 1909-1983[2]



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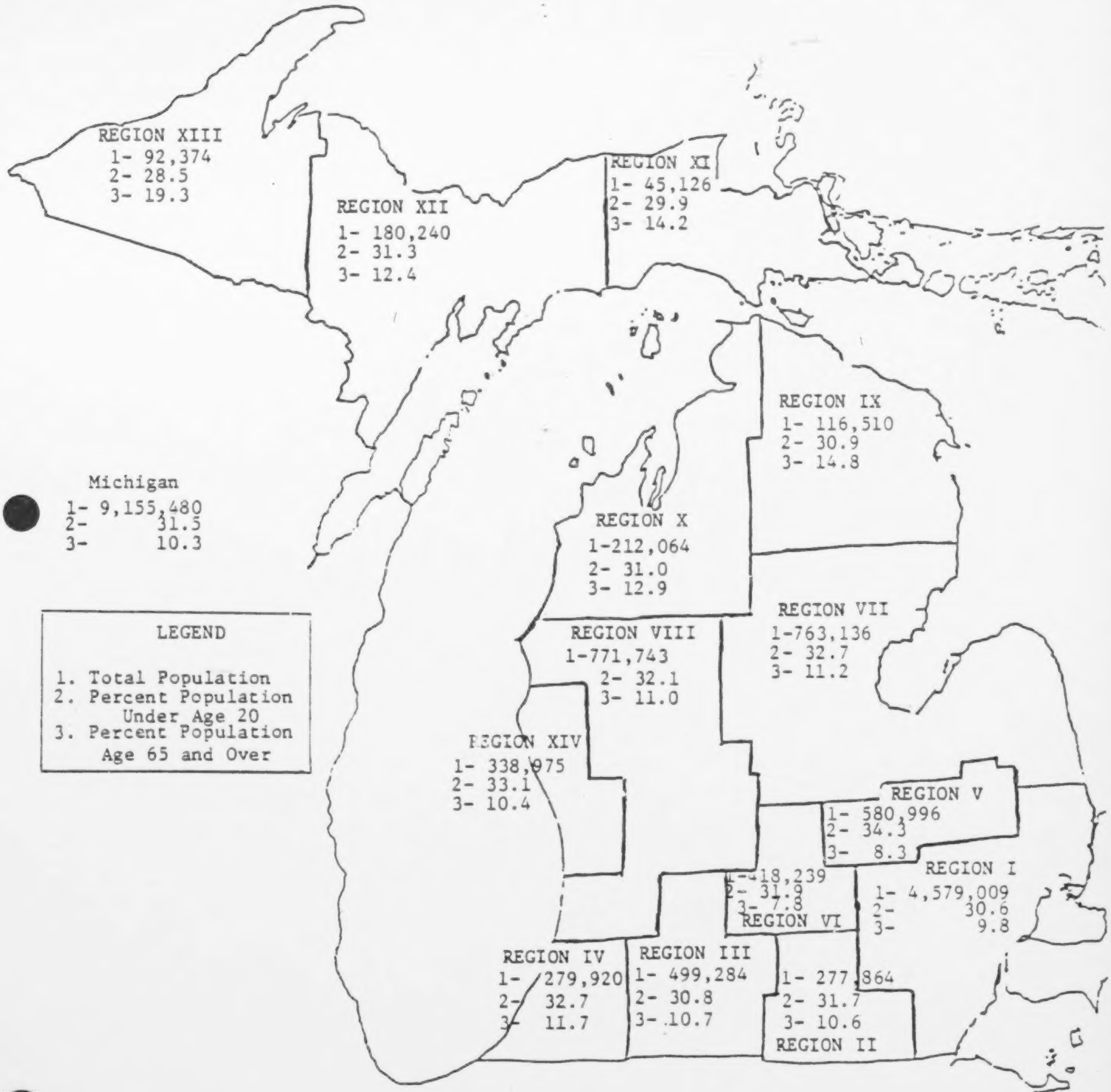
[1] Excess of live births over deaths per 1,000 population.

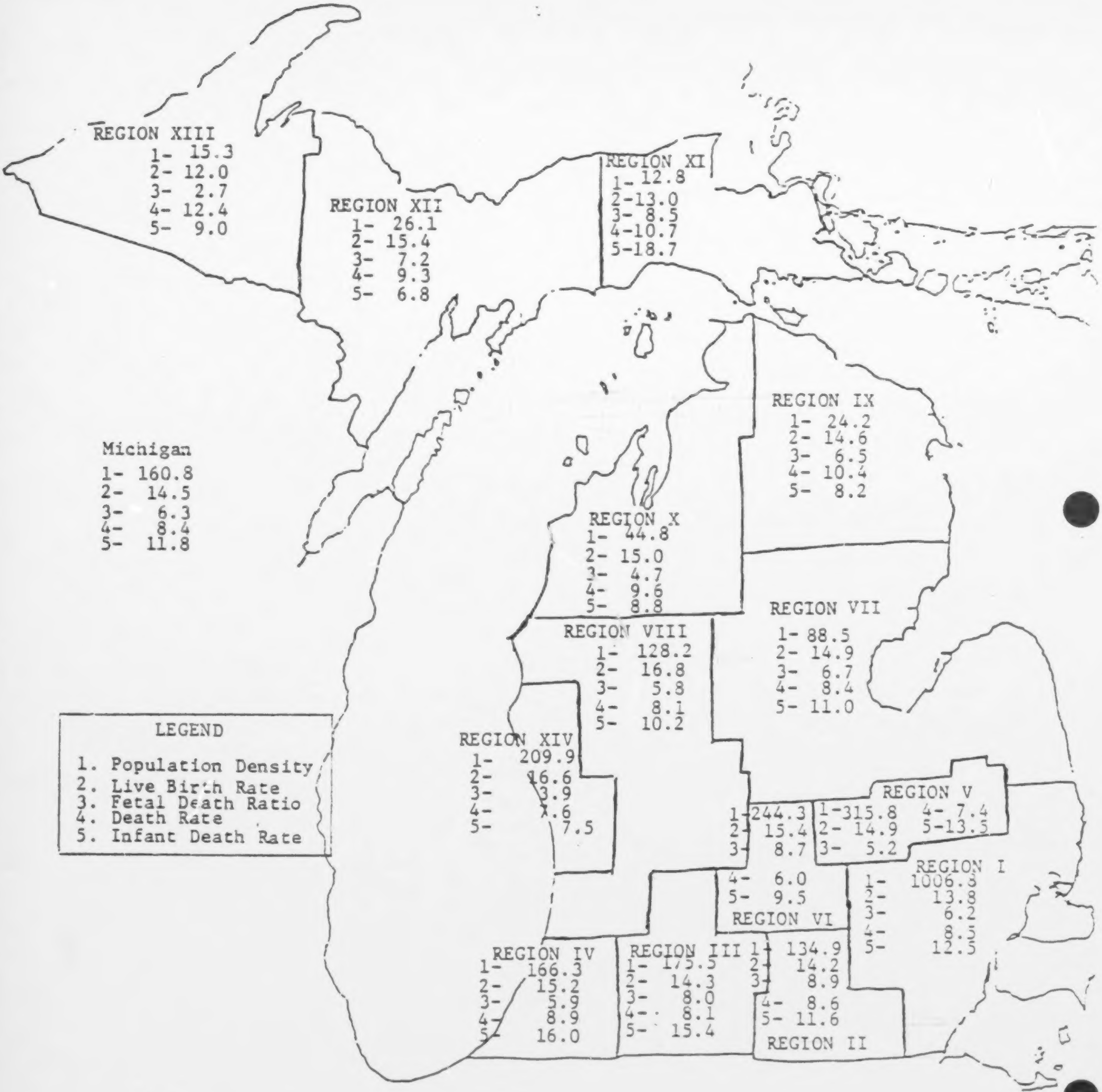
[2] Rates for the United States for 1909-1932 are based on death rates for the death-registration states and estimated birth rates for the United States, adjusted for under-registration. For 1933-1959 rates are based on registered deaths in the United States and births adjusted for under-registration. After 1959 rates are based on registered births and deaths. The rates for 1982 and 1983 are provisional.

FIGURE 4.2 Total Population, Percent Under Age 20 and Percent Age 65 and over by Region, Michigan, 1983


REGION XIII
1- 92,374
2- 28.5
3- 19.3
REGION XII
1- 180,240
2- 31.3
3- 12.4
REGION XI
1- 45,126
2- 29.9
3- 14.2
REGION IX
1- 116,510
2- 30.9
3- 14.8
Michigan
1- 9,155,480
2- 31.5
3- 10.3
REGION X
1-212,064
2- 31.0
3- 12.9
REGION VII
1-763,136
2- 32.7
3- 11.2
LEGEND
1. Total Population
2. Percent Population Under Age 20
3. Percent Population Age 65 and Over
REGION VIII
1-771,743
2- 32.1
3- 11.0
REGION XIV
1- 338,975
2- 33.1
3- 10.4
REGION V
1- 580,996
2- 34.3
3- 8.3
REGION I
1- 4,579,009
2- 30.6
3- 9.8
1-418,239
2- 31.9
3- 7.8
REGION VI
REGION IV
1- 279,920
2- 32.7
3- 11.7
REGION III
1- 499,284
2- 30.8
3- 10.7
1- 277,864
2- 31.7
3- 10.6
REGION II

[1] State Planning and Developement Regions - August, 1973

FIGURE 4.3 Population Density[1], Live Birth Rates, Fetal Death Ratios, Death Ratios, Death Rates and Infant Mortality Rates by Region[2], Michigan Residents, 1983


REGION XIII
1- 15.3
2- 12.0
3- 2.7
4- 12.4
5- 9.0
REGION XII
1- 26.1
2- 15.4
3- 7.2
4- 9.3
5- 6.8
REGION XI
1- 12.8
2-13.0
3- 8.5
4-10.7
5-18.7
REGION IX
1- 24.2
2- 14.6
3- 6.5
4- 10.4
5- 8.2
Michigan
1- 160.8
2- 14.5
3- 6.3
4- 8.4
5- 11.8
REGION X
1- 44.8
2- 15.0
3- 4.7
4- 9.6
5- 8.8
REGION VII
1- 88.5
2- 14.9
3- 6.7
4- 8.4
5- 11.0
REGION VIII
1- 128.2
2- 16.8
3- 5.8
4- 8.1
5- 10.2
LEGEND
1. Population Density
2. Live Birth Rate
3. Fetal Death Ratio
4. Death Rate
5. Infant Death Rate
REGION XIV
1- 209.9
2- 16.6
3- 3.9
4- 7.6
5- 7.5
1- 244.3
2- 15.4
3- 8.7
4- 6.0
5- 9.5
REGION VI
REGION V
1-315.8
2- 14.9
3- 5.2
4- 7.4
5-13.5
REGION I
1- 1006.8
2- 13.8
3- 6.2
4- 8.5
5- 12.5
REGION IV
1- 166.3
2- 15.2
3- 5.9
4- 8.9
5- 16.0
REGION III
1- 175.5
2- 14.3
3- 8.0
4- 8.1
5- 15.4
1- 134.9
2- 14.2
3- 8.9
4- 8.6
5- 11.6
REGION II

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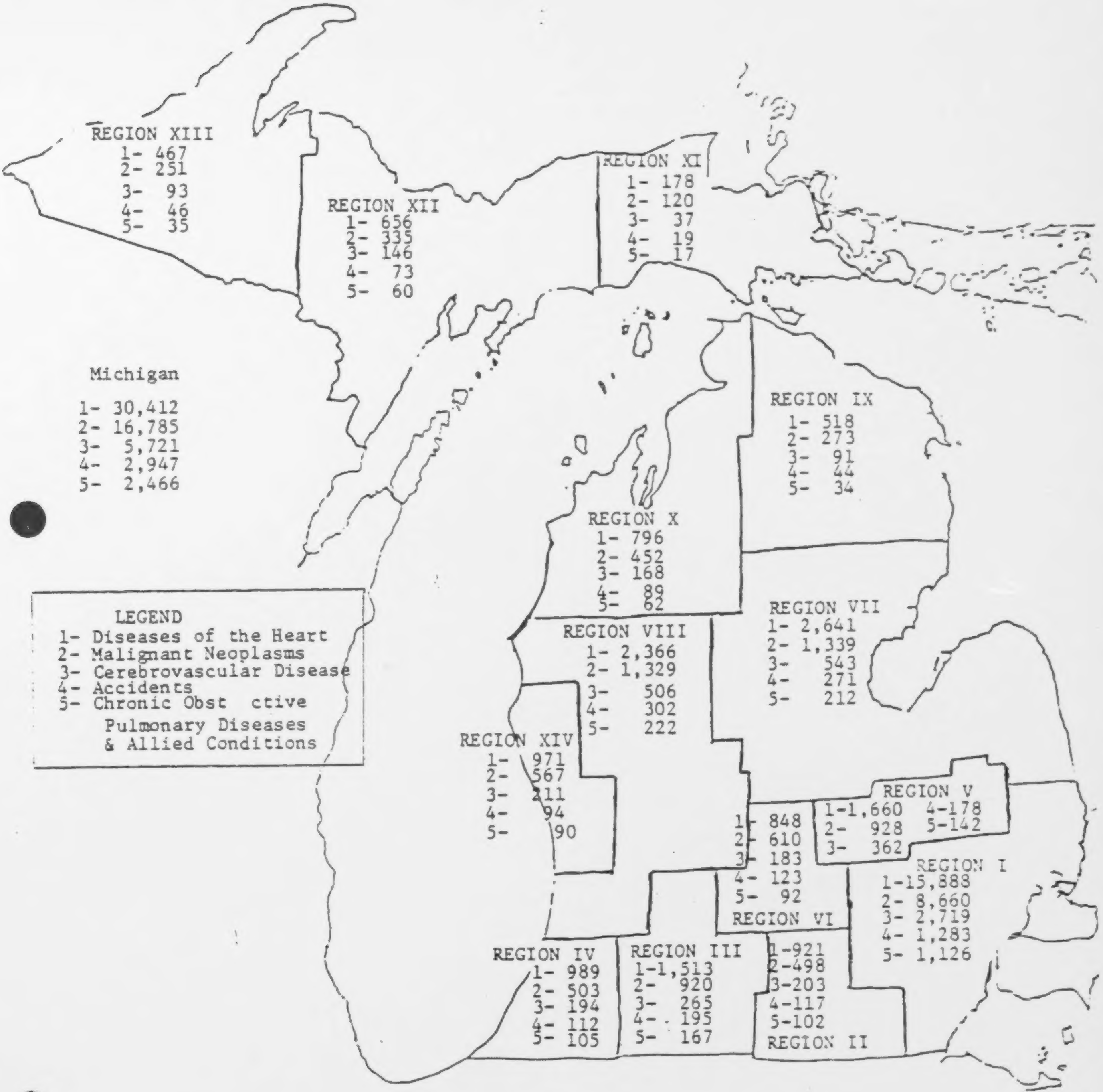
[1] Number of persons per square mile

[2] State Planning and Developement Regions - August, 1973

FIGURE 4.4 Leading Causes of Death. Number of Deaths by Region[1], Michigan Residents, 1983


REGION XIII
1- 467
2- 251
3- 93
4- 46
5- 35
REGION XII
1- 656
2- 335
3- 146
4- 73
5- 60
REGION XI
1- 178
2- 120
3- 37
4- 19
5- 17
Michigan
1- 30,412
2- 16,785
3- 5,721
4- 2,947
5- 2,466
REGION IX
1- 518
2- 273
3- 91
4- 44
5- 34
REGION X
1- 796
2- 452
3- 168
4- 89
5- 62
LEGEND
1- Diseases of the Heart
2- Malignant Neoplasms
3- Cerebrovascular Disease
4- Accidents
5- Chronic Obst ctive
Pulmonary Diseases
& Allied Conditions
REGION VIII
1- 2,366
2- 1,329
3- 506
4- 302
5- 222
REGION VII
1- 2,641
2- 1,339
3- 543
4- 271
5- 212
REGION XIV
1- 971
2- 567
3- 211
4- 94
5- 90
1- 848
2- 610
3- 183
4- 123
5- 92
REGION VI
REGION V
1-1,660 4-178
2- 928 5-142
3- 362
REGION I
1-15,888
2- 8,660
3- 2,719
4- 1,283
5- 1,126
REGION IV
1- 989
2- 503
3- 194
4- 112
5- 105
REGION III
1-1,513
2- 920
3- 265
4- 195
5- 167
1-921
2-498
3-203
4-117
5-102
REGION II

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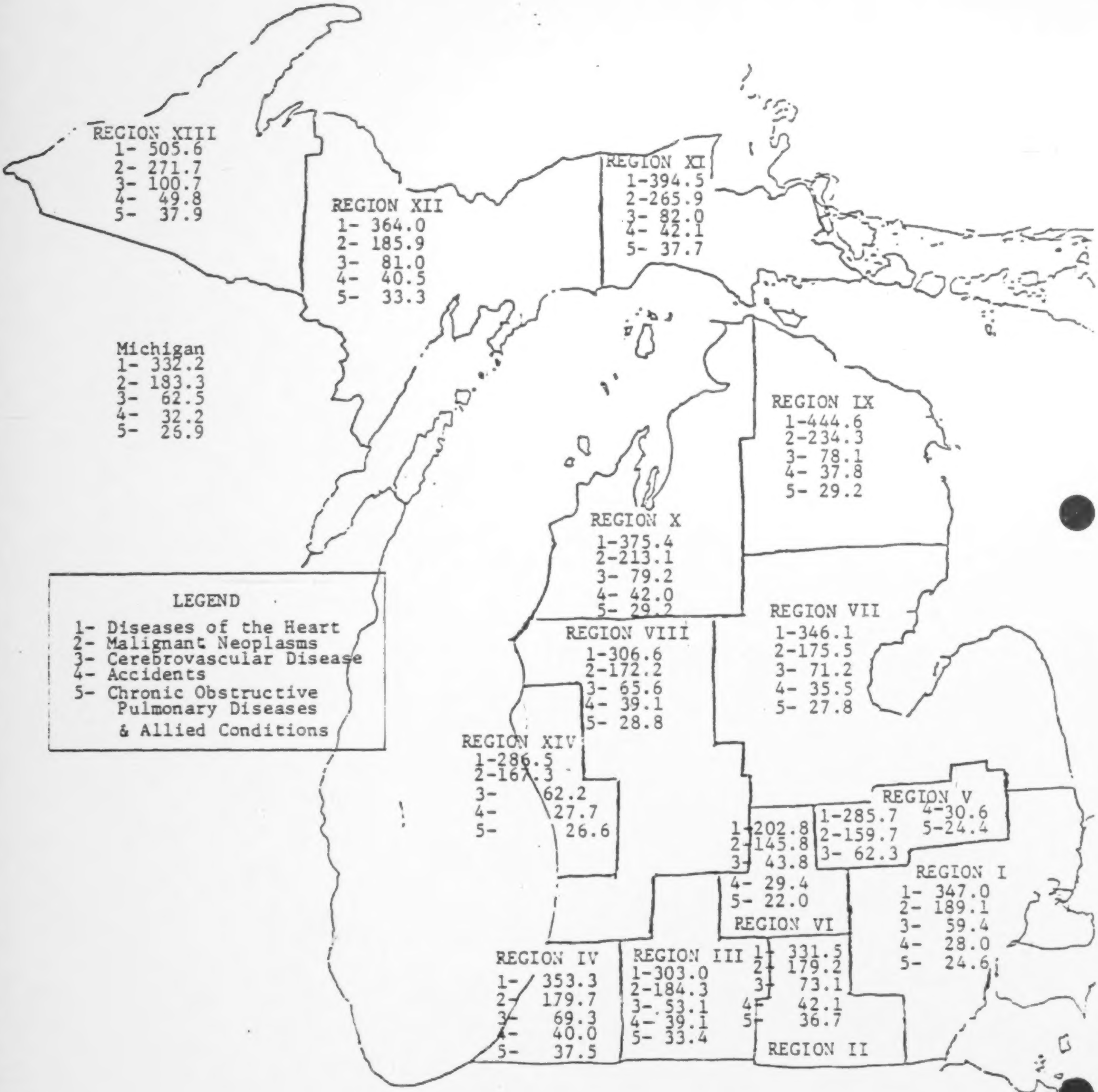
[1] State Planning and Developement Regions - August, 1973

FIGURE 4.5 Leading Causes of Deaths; Death Rates by Region[1], Michigan Residents, 1983


REGION XIII
1- 505.6
2- 271.7
3- 100.7
4- 49.8
5- 37.9
REGION XII
1- 364.0
2- 185.9
3- 81.0
4- 40.5
5- 33.3
REGION XI
1-394.5
2-265.9
3- 82.0
4- 42.1
5- 37.7
Michigan
1- 332.2
2- 183.3
3- 62.5
4- 32.2
5- 26.9
REGION IX
1-444.6
2-234.3
3- 78.1
4- 37.8
5- 29.2
REGION X
1-375.4
2-213.1
3- 79.2
4- 42.0
5- 29.2
LEGEND
1- Diseases of the Heart
2- Malignant Neoplasms
3- Cerebrovascular Disease
4- Accidents
5- Chronic Obstructive Pulmonary Diseases & Allied Conditions
REGION VIII
1-306.6
2-172.2
3- 65.6
4- 39.1
5- 28.8
REGION VII
1-346.1
2-175.5
3- 71.2
4- 35.5
5- 27.8
REGION XIV
1-286.5
2-167.3
3- 62.2
4- 27.7
5- 26.6
REGION V
1-285.7
2-159.7
3- 62.3
4-30.6
5-24.4
1-202.8
2-145.8
3- 43.8
4- 29.4
5- 22.0
REGION VI
REGION I
1- 347.0
2- 189.1
3- 59.4
4- 28.0
5- 24.6
REGION IV
1- 353.3
2- 179.7
3- 69.3
4- 40.0
5- 37.5
REGION III
1-303.0
2-184.3
3- 53.1
4- 39.1
5- 33.4
1- 331.5
2- 179.2
3- 73.1
4- 42.1
5- 36.7
REGION II

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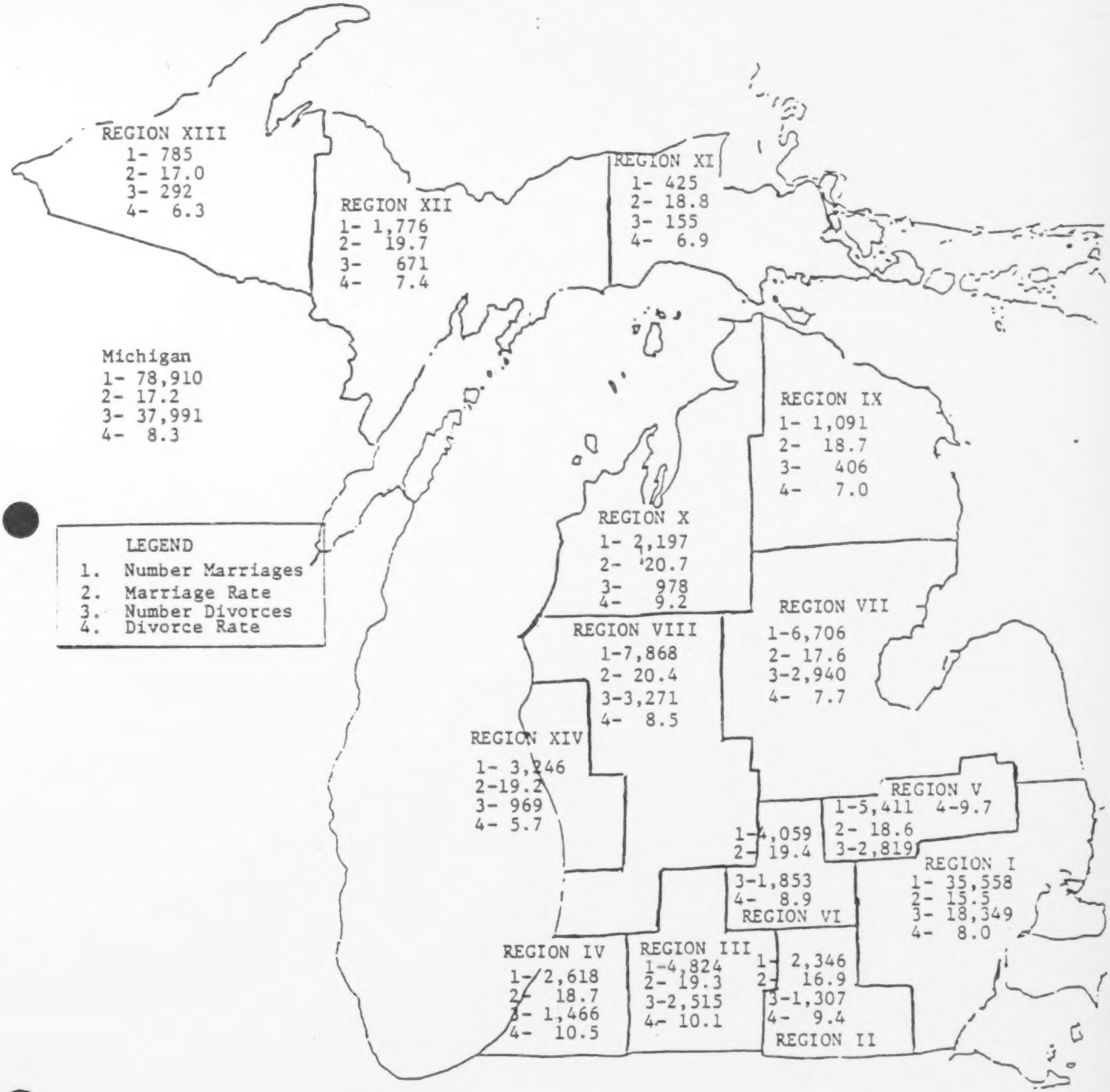
1 State Planning and Developement Regions - August, 1973

FIGURE 4.6 Marriages and Marriage Rates, Divorces and
Divorce Rates by Region[1],
Michigan Residents, 1983


REGION XIII
1- 785
2- 17.0
3- 292
4- 6.3
REGION XII
1- 1,776
2- 19.7
3- 671
4- 7.4
REGION XI
1- 425
2- 18.8
3- 155
4- 6.9
Michigan
1- 78,910
2- 17.2
3- 37,991
4- 8.3
REGION IX
1- 1,091
2- 18.7
3- 406
4- 7.0
LEGEND
1. Number Marriages
2. Marriage Rate
3. Number Divorces
4. Divorce Rate
REGION X
1- 2,197
2- 20.7
3- 978
4- 9.2
REGION VII
1-6,706
2- 17.6
3-2,940
4- 7.7
REGION VIII
1-7,868
2- 20.4
3-3,271
4- 8.5
REGION XIV
1- 3,246
2-19.2
3- 969
4- 5.7
REGION V
1-5,411 4-9.7
2- 18.6
3-2,819
1-4,059
2- 19.4
3-1,853
4- 8.9
REGION VI
REGION I
1- 35,558
2- 15.5
3- 18,349
4- 8.0
REGION IV
1- 2,618
2- 18.7
3- 1,466
4- 10.5
REGION III
1-4,824
2- 19.3
3-2,515
4- 10.1
1- 2,346
2- 16.9
3-1,307
4- 9.4
REGION II

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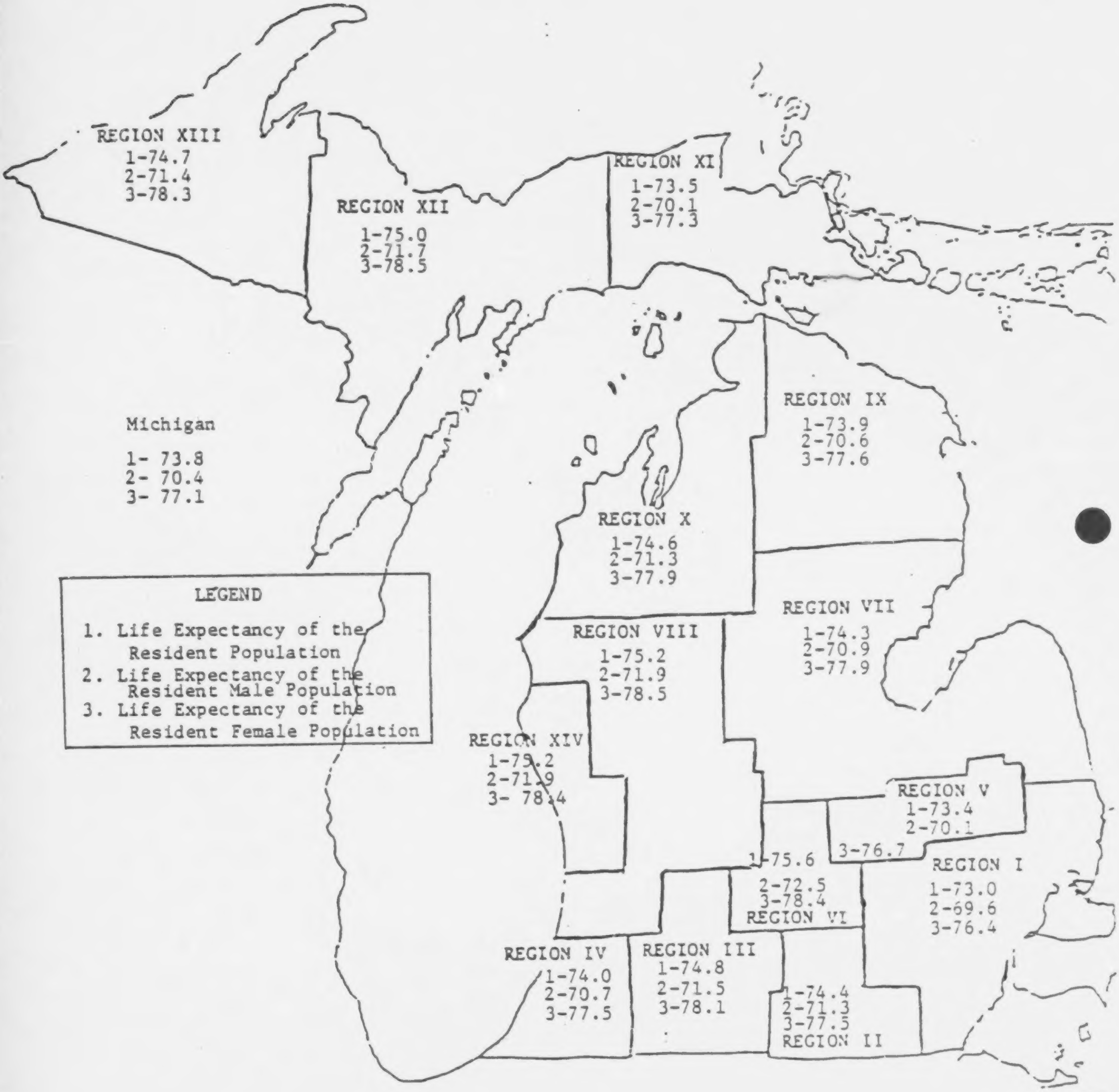
[1] State Planning and Developement Regions - August, 1973

FIGURE 4.7 Life Expectancy at Birth By Sex By Region[1]
Michigan Residents, 1981-1983


REGION XIII
1-74.7
2-71.4
3-78.3
REGION XII
1-75.0
2-71.7
3-78.5
REGION XI
1-73.5
2-70.1
3-77.3
REGION IX
1-73.9
2-70.6
3-77.6
Michigan
1- 73.8
2- 70.4
3- 77.1
REGION X
1-74.6
2-71.3
3-77.9
LEGEND
1. Life Expectancy of the Resident Population
2. Life Expectancy of the Resident Male Population
3. Life Expectancy of the Resident Female Population
REGION VII
1-74.3
2-70.9
3-77.9
REGION VIII
1-75.2
2-71.9
3-78.5
REGION XIV
1-75.2
2-71.9
3- 78.4
REGION V
1-73.4
2-70.1
3-76.7
1-75.6
2-72.5
3-78.4
REGION VI
REGION I
1-73.0
2-69.6
3-76.4
REGION IV
1-74.0
2-70.7
3-77.5
REGION III
1-74.8
2-71.5
3-78.1
1-74.4
2-71.3
3-77.5
REGION II

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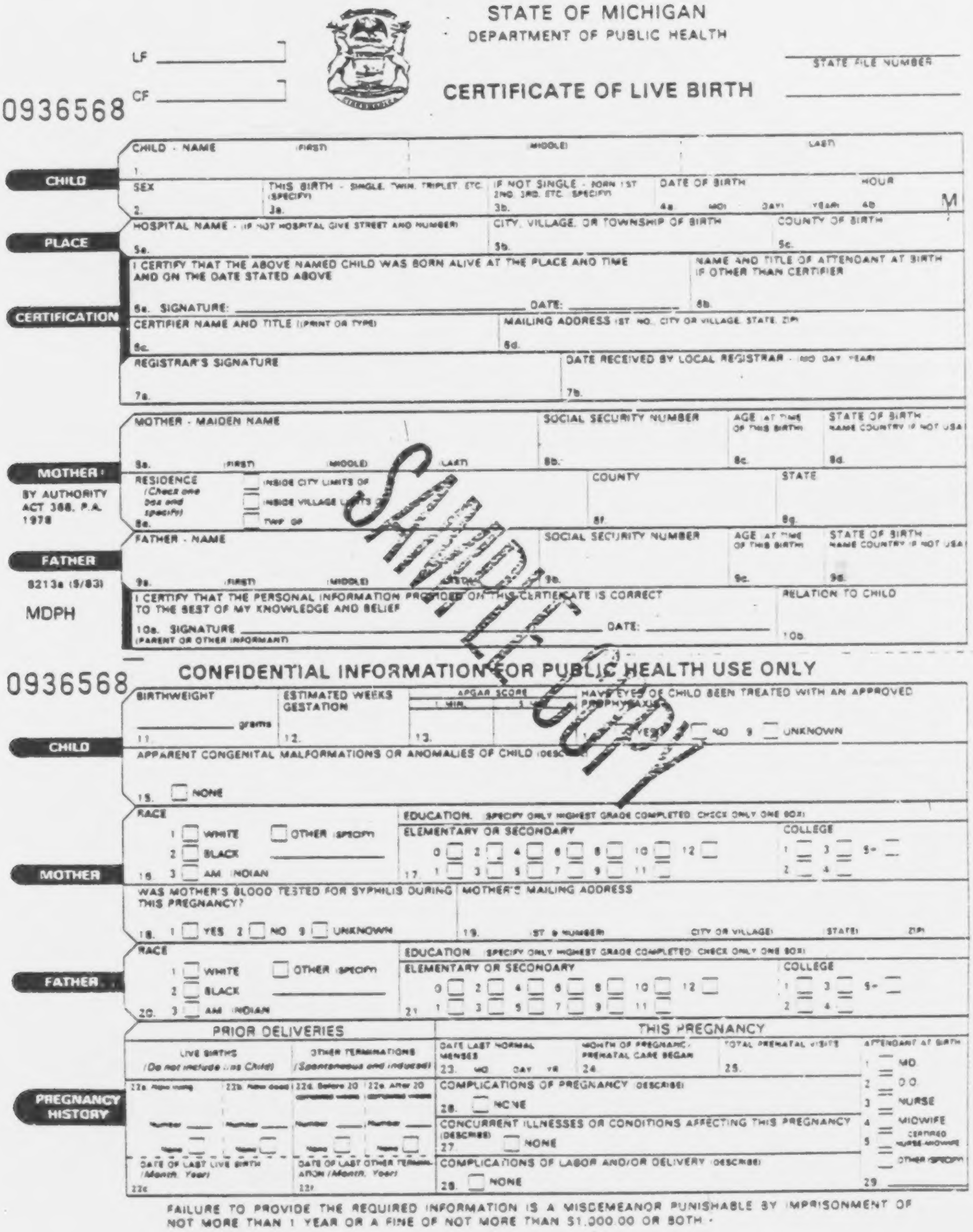
[1] State Planning and Developement Regions - August, 1973

FIGURE 4.8



STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

LF ______
CF ______

0936568

CERTIFICATE OF LIVE BIRTH

STATE FILE NUMBER ______

SAMPLE COPY

CHILD

CHILD - NAME (FIRST) (MIDDLE) (LAST) 1.

SEX 2.

THIS BIRTH - SINGLE, TWIN, TRIPLET, ETC. (SPECIFY) 3a.

IF NOT SINGLE - BORN 1ST, 2ND, 3RD, ETC. (SPECIFY) 3b.

DATE OF BIRTH 4a. (MO) (DAY) (YEAR)

HOUR 4b. M

PLACE

HOSPITAL NAME - (IF NOT HOSPITAL GIVE STREET AND NUMBER) 5a.

CITY, VILLAGE, OR TOWNSHIP OF BIRTH 5b.

COUNTY OF BIRTH 5c.

CERTIFICATION

I CERTIFY THAT THE ABOVE NAMED CHILD WAS BORN ALIVE AT THE PLACE AND TIME AND ON THE DATE STATED ABOVE

6a. SIGNATURE: ______ DATE: ______

NAME AND TITLE OF ATTENDANT AT BIRTH IF OTHER THAN CERTIFIER 6b.

CERTIFIER NAME AND TITLE (PRINT OR TYPE) 6c.

MAILING ADDRESS (ST. NO., CITY OR VILLAGE, STATE, ZIP) 6d.

REGISTRAR'S SIGNATURE 7a.

DATE RECEIVED BY LOCAL REGISTRAR - (MO DAY YEAR) 7b.

MOTHER

BY AUTHORITY ACT 368, P.A. 1978

MOTHER - MAIDEN NAME 8a. (FIRST) (MIDDLE) (LAST)

SOCIAL SECURITY NUMBER 8b.

AGE (AT TIME OF THIS BIRTH) 8c.

STATE OF BIRTH - NAME COUNTRY IF NOT USA 8d.

RESIDENCE (Check one box and specify) 8e.
☐ INSIDE CITY LIMITS OF
☐ INSIDE VILLAGE LIMITS OF
☐ TWP. OF

COUNTY 8f.

STATE 8g.

FATHER

8213a (5/83)

MDPH

FATHER - NAME 9a. (FIRST) (MIDDLE) (LAST)

SOCIAL SECURITY NUMBER 9b.

AGE (AT TIME OF THIS BIRTH) 9c.

STATE OF BIRTH - NAME COUNTRY IF NOT USA 9d.

I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THIS CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

10a. SIGNATURE ______ DATE: ______
(PARENT OR OTHER INFORMANT)

RELATION TO CHILD 10b.

0936568

CONFIDENTIAL INFORMATION FOR PUBLIC HEALTH USE ONLY

CHILD

BIRTHWEIGHT ______ grams 11.

ESTIMATED WEEKS GESTATION 12.

APGAR SCORE 13. 1 MIN. 5 MIN.

HAVE EYES OF CHILD BEEN TREATED WITH AN APPROVED PROPHYLAXIS? 14. 1 ☐ YES 2 ☐ NO 9 ☐ UNKNOWN

APPARENT CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (DESCRIBE) 15. ☐ NONE

MOTHER

RACE 16.
1 ☐ WHITE ☐ OTHER (SPECIFY) ______
2 ☐ BLACK
3 ☐ AM. INDIAN

EDUCATION (SPECIFY ONLY HIGHEST GRADE COMPLETED. CHECK ONLY ONE BOX) 17.
ELEMENTARY OR SECONDARY
0 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ 10 ☐ 12 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐

WAS MOTHER'S BLOOD TESTED FOR SYPHILIS DURING THIS PREGNANCY?
18. 1 ☐ YES 2 ☐ NO 9 ☐ UNKNOWN

MOTHER'S MAILING ADDRESS
19. (ST. & NUMBER) (CITY OR VILLAGE) (STATE) (ZIP)

FATHER

RACE 20.
1 ☐ WHITE ☐ OTHER (SPECIFY) ______
2 ☐ BLACK
3 ☐ AM. INDIAN

EDUCATION (SPECIFY ONLY HIGHEST GRADE COMPLETED. CHECK ONLY ONE BOX) 21.
ELEMENTARY OR SECONDARY
0 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ 10 ☐ 12 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐

PREGNANCY HISTORY

PRIOR DELIVERIES

LIVE BIRTHS (Do not include this Child)
22a. Now living Number ______ None ☐
22b. Now dead Number ______ None ☐

OTHER TERMINATIONS (Spontaneous and induced)
22d. Before 20 completed weeks Number ______ None ☐
22e. After 20 completed weeks Number ______ None ☐

DATE OF LAST LIVE BIRTH (Month, Year) 22c.

DATE OF LAST OTHER TERMINATION (Month, Year) 22f.

THIS PREGNANCY

DATE LAST NORMAL MENSES 23. MO DAY YR

MONTH OF PREGNANCY PRENATAL CARE BEGAN 24.

TOTAL PRENATAL VISITS 25.

COMPLICATIONS OF PREGNANCY (DESCRIBE) 26. ☐ NONE

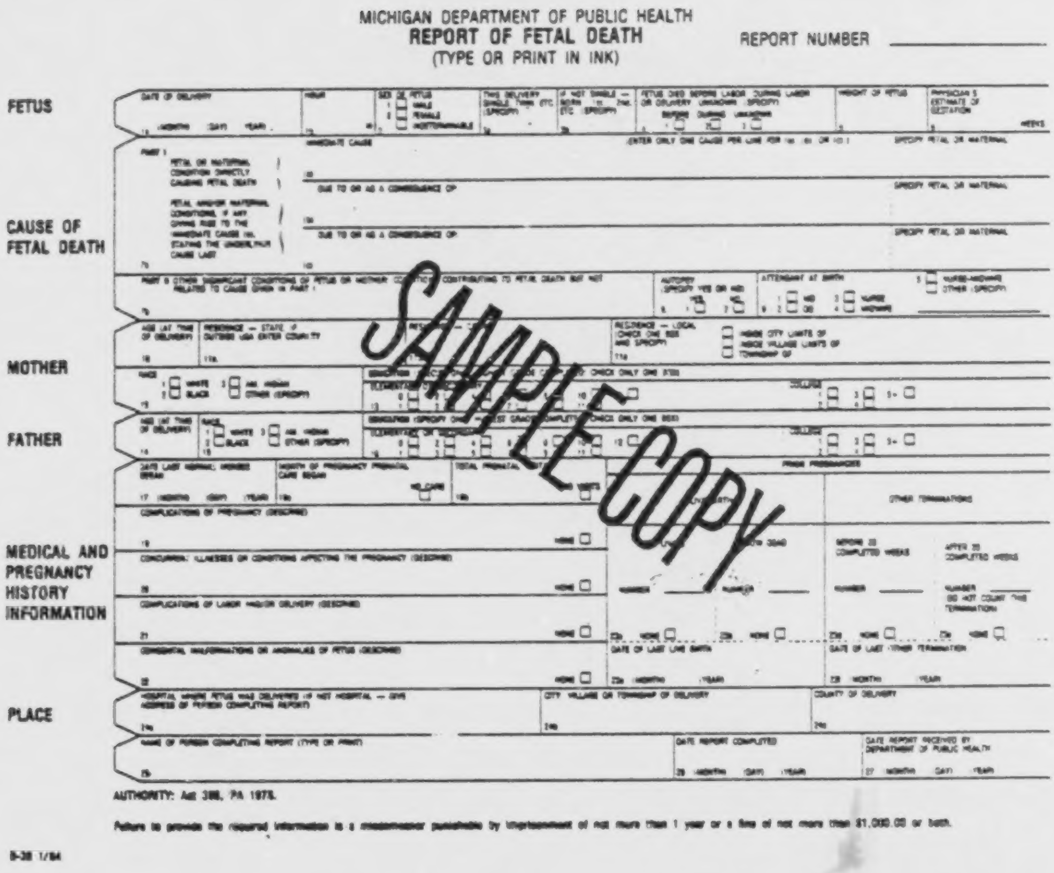
CONCURRENT ILLNESSES OR CONDITIONS AFFECTING THIS PREGNANCY (DESCRIBE) 27. ☐ NONE

COMPLICATIONS OF LABOR AND/OR DELIVERY (DESCRIBE) 28. ☐ NONE

ATTENDANT AT BIRTH 29.
1 ☐ MD
2 ☐ D.O.
3 ☐ NURSE
4 ☐ MIDWIFE
5 ☐ CERTIFIED NURSE-MIDWIFE
☐ OTHER (SPECIFY) ______

FAILURE TO PROVIDE THE REQUIRED INFORMATION IS A MISDEMEANOR PUNISHABLE BY IMPRISONMENT OF NOT MORE THAN 1 YEAR OR A FINE OF NOT MORE THAN $1,000.00 OR BOTH.

FIGURE 4.9



MICHIGAN DEPARTMENT OF PUBLIC HEALTH
REPORT OF FETAL DEATH
(TYPE OR PRINT IN INK)

REPORT NUMBER ____________

FETUS

CAUSE OF FETAL DEATH

MOTHER

FATHER

MEDICAL AND PREGNANCY HISTORY INFORMATION

PLACE

SAMPLE COPY

AUTHORITY: Act 368, PA 1978.

Failure to provide the required information is a misdemeanor punishable by imprisonment of not more than 1 year or a fine of not more than $1,000.00 or both.

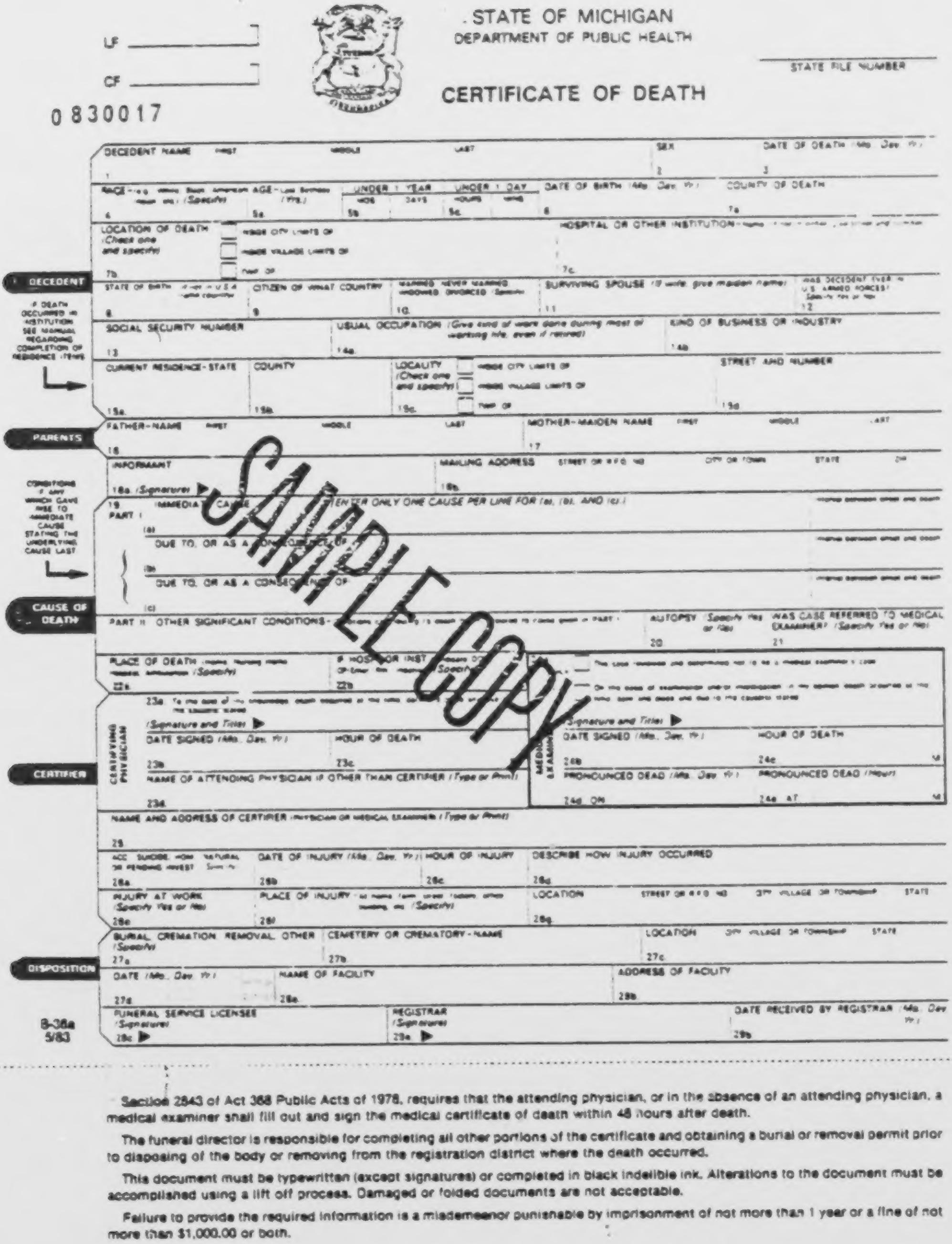
INSTRUCTIONS

Michigan Public Act 368 of 1978 requires the reporting of the death of a fetus which has completed 20 weeks of gestation or weighs at least 400 grams to the state registrar within 5 days after delivery. Responsibility for filing fetal death reports lies with the following: 1) the institution where the fetus is delivered; 2) the attending physician if delivered outside an institution; 3) the medical examiner, when investigation by the medical examiner is required.

As these reports are necessary in the development of important statistical health measures for the state, including fetal and perinatal mortality, and the analysis of various variables associated to fetal death outcomes, it is important that each report be as accurrate and complete as is possible.

DO NOT REPORT THE NAME OF THE BIOLOGICAL PARENTS, OR OTHER INFORMATION WHICH WOULD MAKE IT POSSIBLE TO IDENTIFY EITHER PARENT.

FIGURE 4.10



LF

CF

0 830017

. STATE OF MICHIGAN

DEPARTMENT OF PUBLIC HEALTH

STATE FILE NUMBER

CERTIFICATE OF DEATH

SAMPLE COPY

DECEDENT

DECEDENT NAME FIRST MIDDLE LAST 1

SEX 2

DATE OF DEATH (Mo. Day Yr.) 3

RACE (Specify) 4

AGE–Last birthday (Yrs.) 5a

UNDER 1 YEAR MOS DAYS 5b

UNDER 1 DAY HOURS MINS 5c

DATE OF BIRTH (Mo. Day Yr.) 6

COUNTY OF DEATH 7a

LOCATION OF DEATH (Check one and specify) 7b ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP. OF

HOSPITAL OR OTHER INSTITUTION–Name 7c

STATE OF BIRTH 8

CITIZEN OF WHAT COUNTRY 9

MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (Specify) 10

SURVIVING SPOUSE (If wife, give maiden name) 11

WAS DECEDENT EVER IN U.S. ARMED FORCES? (Specify Yes or No) 12

SOCIAL SECURITY NUMBER 13

USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) 14a

KIND OF BUSINESS OR INDUSTRY 14b

IF DEATH OCCURRED IN INSTITUTION SEE MANUAL REGARDING COMPLETION OF RESIDENCE ITEMS

CURRENT RESIDENCE–STATE 15a

COUNTY 15b

LOCALITY (Check one and specify) 15c ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP. OF

STREET AND NUMBER 15d

PARENTS

FATHER–NAME FIRST MIDDLE LAST 16

MOTHER–MAIDEN NAME FIRST MIDDLE LAST 17

INFORMANT 18a (Signature) ▶

MAILING ADDRESS STREET OR R.F.D. NO. CITY OR TOWN STATE ZIP 18b

CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST

CAUSE OF DEATH

19 PART I IMMEDIATE CAUSE (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).)

(a)

DUE TO, OR AS A CONSEQUENCE OF

(b)

DUE TO, OR AS A CONSEQUENCE OF

(c)

PART II OTHER SIGNIFICANT CONDITIONS

AUTOPSY (Specify Yes or No) 20

WAS CASE REFERRED TO MEDICAL EXAMINER? (Specify Yes or No) 21

PLACE OF DEATH (Specify) 22a

IF HOSP. OR INST. (Specify) 22b

CERTIFIER

CERTIFYING PHYSICIAN

23a (Signature and Title) ▶

DATE SIGNED (Mo. Day Yr.) 23b

HOUR OF DEATH 23c

NAME OF ATTENDING PHYSICIAN IF OTHER THAN CERTIFIER (Type or Print) 23d

MEDICAL EXAMINER

☐

☐

(Signature and Title) ▶

DATE SIGNED (Mo. Day Yr.) 24b

HOUR OF DEATH 24c M

PRONOUNCED DEAD (Mo. Day Yr.) 24d ON

PRONOUNCED DEAD (Hour) 24e AT M

NAME AND ADDRESS OF CERTIFIER (PHYSICIAN OR MEDICAL EXAMINER) (Type or Print) 25

ACC. SUICIDE, HOM., NATURAL OR PENDING INVEST. (Specify) 26a

DATE OF INJURY (Mo. Day Yr.) 26b

HOUR OF INJURY 26c

DESCRIBE HOW INJURY OCCURRED 26d

INJURY AT WORK (Specify Yes or No) 26e

PLACE OF INJURY (Specify) 26f

LOCATION STREET OR R.F.D. NO. CITY, VILLAGE OR TOWNSHIP STATE 26g

DISPOSITION

BURIAL, CREMATION, REMOVAL, OTHER (Specify) 27a

CEMETERY OR CREMATORY–NAME 27b

LOCATION CITY, VILLAGE OR TOWNSHIP STATE 27c

DATE (Mo. Day Yr.) 27d

NAME OF FACILITY 28a

ADDRESS OF FACILITY 28b

FUNERAL SERVICE LICENSEE (Signature) 28c ▶

REGISTRAR (Signature) 29a ▶

DATE RECEIVED BY REGISTRAR (Mo. Day Yr.) 29b

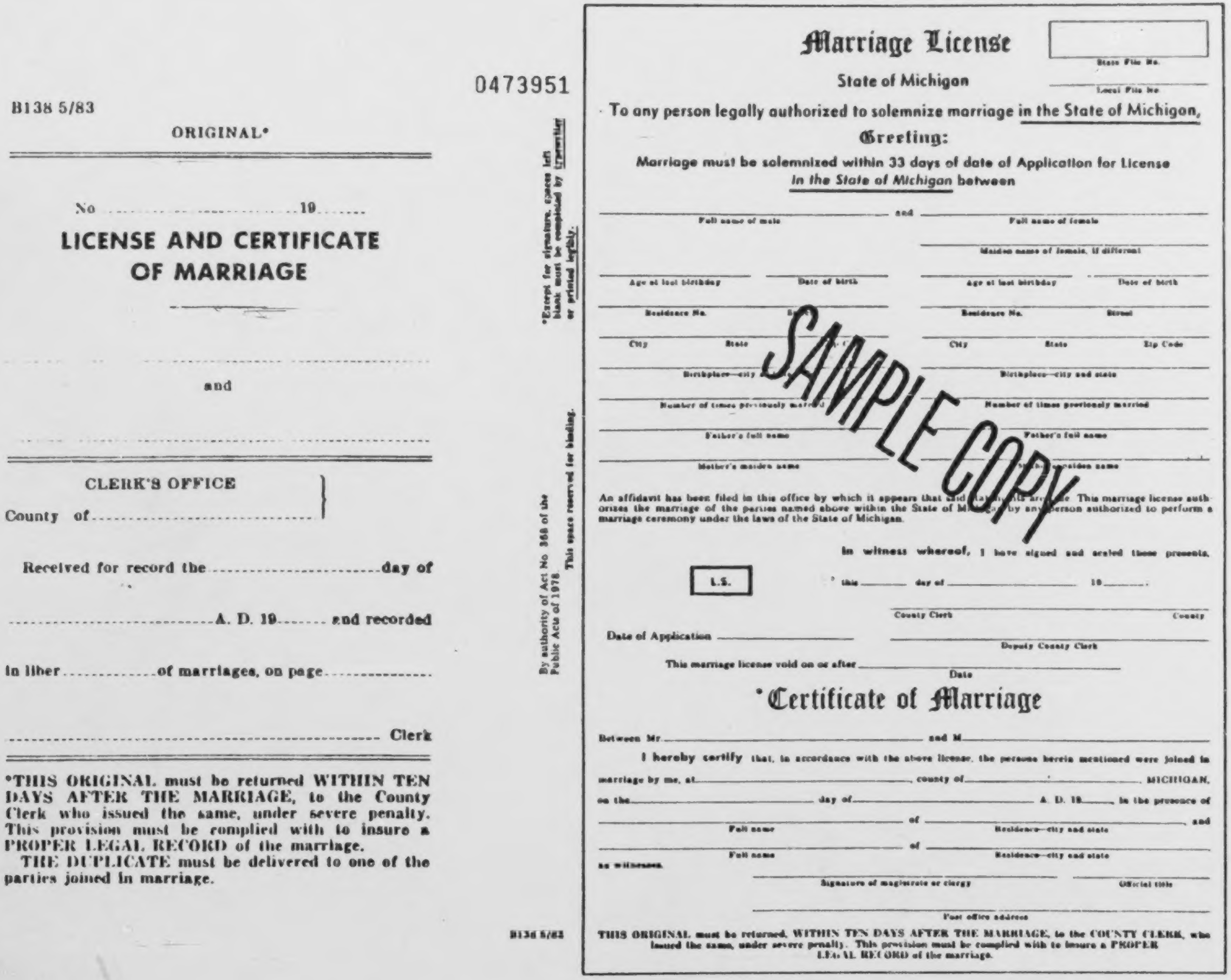
B-36a
5/83

Section 2843 of Act 368 Public Acts of 1978, requires that the attending physician, or in the absence of an attending physician, a medical examiner shall fill out and sign the medical certificate of death within 48 hours after death.

The funeral director is responsible for completing all other portions of the certificate and obtaining a burial or removal permit prior to disposing of the body or removing from the registration district where the death occurred.

This document must be typewritten (except signatures) or completed in black indelible ink. Alterations to the document must be accomplished using a lift off process. Damaged or folded documents are not acceptable.

Failure to provide the required information is a misdemeanor punishable by imprisonment of not more than 1 year or a fine of not more than $1,000.00 or both.



B138 5/83

ORIGINAL*

No .... 19 ......

LICENSE AND CERTIFICATE OF MARRIAGE

and

CLERK'S OFFICE

County of ....

Received for record the .... day of

.... A. D. 19 .... and recorded

in liber .... of marriages, on page ....

.... Clerk

*THIS ORIGINAL must be returned WITHIN TEN DAYS AFTER THE MARRIAGE, to the County Clerk who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

THE DUPLICATE must be delivered to one of the parties joined in marriage.

0473951

*Except for signature, spaces left blank must be completed by typewriter or printed legibly.

By authority of Act No 368 of the Public Acts of 1978.

This space reserved for binding.

B138 5/83

Marriage License

State File No.

Local File No

State of Michigan

To any person legally authorized to solemnize marriage in the State of Michigan,

Greeting:

Marriage must be solemnized within 33 days of date of Application for License *In the State of Michigan* between

Full name of male and Full name of female

Maiden name of female, if different

Age at last birthday | Date of birth | Age at last birthday | Date of birth

Residence No. | Street | Residence No. | Street

City | State | Zip Code | City | State | Zip Code

Birthplace—city and state | Birthplace—city and state

Number of times previously married | Number of times previously married

Father's full name | Father's full name

Mother's maiden name | Mother's maiden name

SAMPLE COPY

An affidavit has been filed in this office by which it appears that said statements are true. This marriage license authorizes the marriage of the parties named above within the State of Michigan by any person authorized to perform a marriage ceremony under the laws of the State of Michigan.

In witness whereof, I have signed and sealed these presents,

L.S.

this ________ day of ____________________ 19 ________.

County Clerk ____________________ County

Date of Application ____________________

Deputy County Clerk

This marriage license void on or after ____________________ Date

*Certificate of Marriage

Between Mr. ____________________ and M ____________________

I hereby certify that, in accordance with the above license, the persons herein mentioned were joined in marriage by me, at ____________________, county of ____________________, MICHIGAN, on the ____________ day of ____________________ A. D. 19 ______, in the presence of

____________________ of ____________________, and
Full name | Residence—city and state

____________________ of ____________________
Full name | Residence—city and state

as witnesses.

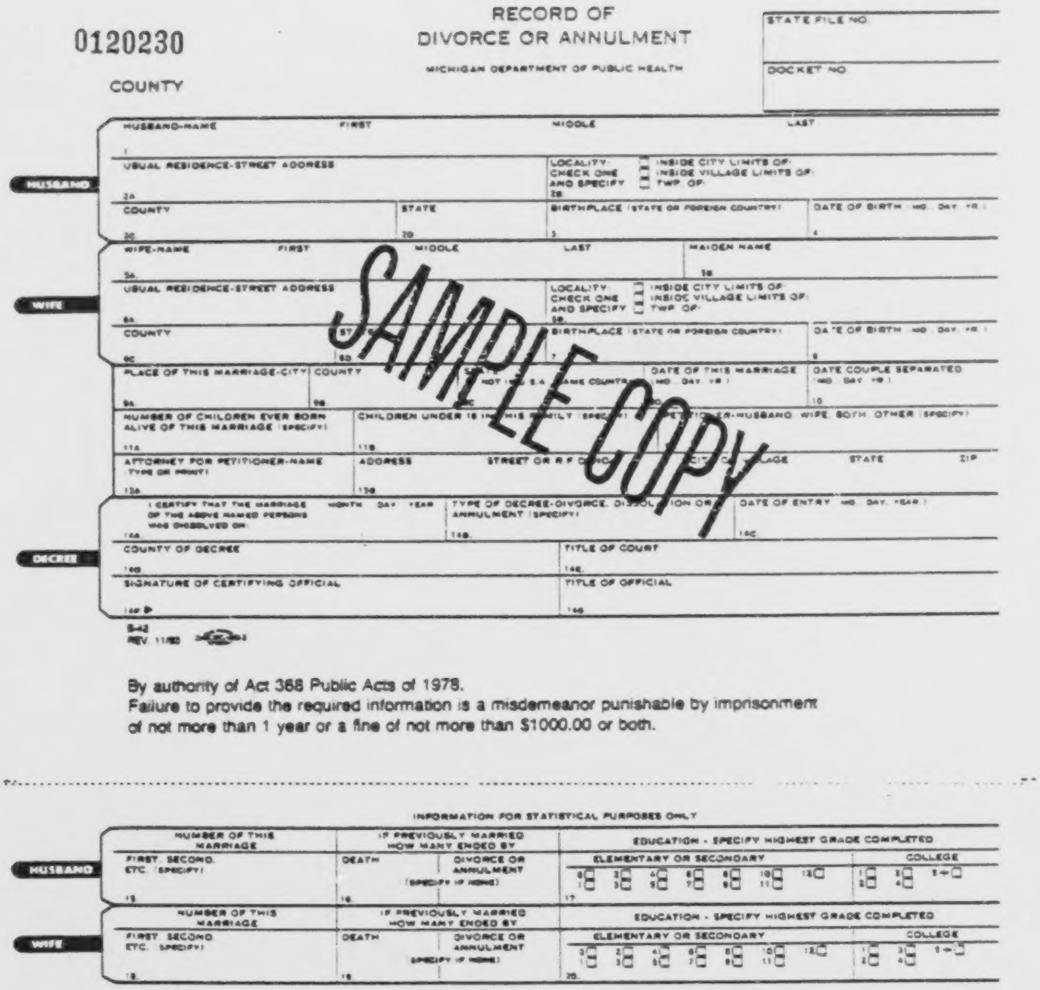
Signature of magistrate or clergy | Official title

Post office address

THIS ORIGINAL must be returned, WITHIN TEN DAYS AFTER THE MARRIAGE, to the COUNTY CLERK, who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

FIGURE 4.11

FIGURE 4.12



0120230

COUNTY

RECORD OF
DIVORCE OR ANNULMENT

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

STATE FILE NO.

DOCKET NO.

SAMPLE COPY

HUSBAND

HUSBAND-NAME FIRST MIDDLE LAST
1.

USUAL RESIDENCE-STREET ADDRESS
2A.

LOCALITY: CHECK ONE AND SPECIFY ☐ INSIDE CITY LIMITS OF: ☐ INSIDE VILLAGE LIMITS OF: ☐ TWP. OF:
2B.

COUNTY
2C.

STATE
2D.

BIRTHPLACE (STATE OR FOREIGN COUNTRY)
3.

DATE OF BIRTH (MO., DAY, YR.)
4.

WIFE

WIFE-NAME FIRST MIDDLE LAST
5A.

MAIDEN NAME
5B.

USUAL RESIDENCE-STREET ADDRESS
6A.

LOCALITY: CHECK ONE AND SPECIFY ☐ INSIDE CITY LIMITS OF: ☐ INSIDE VILLAGE LIMITS OF: ☐ TWP. OF:
6B.

COUNTY
6C.

ST
6D.

BIRTHPLACE (STATE OR FOREIGN COUNTRY)
7.

DATE OF BIRTH (MO., DAY, YR.)
8.

PLACE OF THIS MARRIAGE-CITY
9A.

COUNTY
9B.

STATE NOT IN U.S.A. NAME COUNTRY
9C.

DATE OF THIS MARRIAGE (MO., DAY, YR.)

DATE COUPLE SEPARATED (MO., DAY, YR.)
10.

NUMBER OF CHILDREN EVER BORN ALIVE OF THIS MARRIAGE (SPECIFY)
11A.

CHILDREN UNDER 18 IN THIS FAMILY (SPECIFY)
11B.

PETITIONER-HUSBAND, WIFE, BOTH, OTHER (SPECIFY)

ATTORNEY FOR PETITIONER-NAME (TYPE OR PRINT)
13A.

ADDRESS STREET OR R.F.D. NO. CITY OR VILLAGE STATE ZIP
13B.

DECREE

I CERTIFY THAT THE MARRIAGE OF THE ABOVE NAMED PERSONS WAS DISSOLVED ON: MONTH DAY YEAR
14A.

TYPE OF DECREE-DIVORCE, DISSOLUTION OR ANNULMENT (SPECIFY)
14B.

DATE OF ENTRY (MO., DAY, YEAR)
14C.

COUNTY OF DECREE
14D.

TITLE OF COURT
14E.

SIGNATURE OF CERTIFYING OFFICIAL
14F ▶

TITLE OF OFFICIAL
14G.

S-42
REV. 11/80

By authority of Act 368 Public Acts of 1978.
Failure to provide the required information is a misdemeanor punishable by imprisonment of not more than 1 year or a fine of not more than $1000.00 or both.

INFORMATION FOR STATISTICAL PURPOSES ONLY

HUSBAND

NUMBER OF THIS MARRIAGE
FIRST, SECOND, ETC. (SPECIFY)
15.

IF PREVIOUSLY MARRIED HOW MANY ENDED BY
DEATH
DIVORCE OR ANNULMENT
(SPECIFY IF NONE)
16.

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED
ELEMENTARY OR SECONDARY 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐
COLLEGE 1☐ 2☐ 3☐ 4☐ 5+☐
17.

WIFE

NUMBER OF THIS MARRIAGE
FIRST, SECOND, ETC. (SPECIFY)
18.

IF PREVIOUSLY MARRIED HOW MANY ENDED BY
DEATH
DIVORCE OR ANNULMENT
(SPECIFY IF NONE)
19.

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED
ELEMENTARY OR SECONDARY 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐
COLLEGE 1☐ 2☐ 3☐ 4☐ 5+☐
20.